EXPORT PERFORMANCE OF INDIAN SPICES IN THE WTO REGIME: A DISAGGREGATED ANALYSIS

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By

IBRAHIM Y.C

Reg.No. 3615

Under the Supervision of

Dr. P ARUNACHALAM

Professor and Head, Department of Applied Economics

Cochin University of Science and Technology

DEPARTMENT OF APPLIED ECONOMICS

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY (CUSAT)

KOCHI- 682022. KERALA

FEBRUARY 2015

IBRAHIM Y.C.
Associate Professor and Head
PG Department of Economics

Government College Kodanchery
Kodanchery PO, Calicut Dist.,
Kerala, PIN: 673580

DECLARATION

I, IBRAHIM Y.C. hereby declare that the thesis entitled **"EXPORT PERFORMANCE OF INDIAN SPICES IN THE WTO REGIME: A DISAGGREGATED ANALYSIS"** is a bona fide record of research carried out by me during the course of research under the guidance and supervision of Dr. P. Arunachalam, Professor and Head, Department of Applied Economics, Cochin University of Science and Technology, Cochin, 682022.

I further declare that the titled thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title or recognition of any other University / Institution.

Place : Cochin University
Date : 25/02/2015

IBRAHIM YC
Research Scholar
Department of Applied Economics

DEPARTMENT OF APPLIED ECONOMICS
COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY
KOCHI-682022, KERALA, S.INDIA

Dr.P. Arunachalam
Professor and Head

Ph:0484-2576030(Off) 2577741 (Resi)
Mob: 9746770732
Email:arunachalam14@yahoo.co.uk

CERTIFICATE

This is to certify that the thesis entitled **"EXPORT PERFORMANCE OF INDIAN SPICES IN THE WTO REGIME: A DISAGGREGATED ANALYSIS"** is a bona fide research work done by **Mr. IBRAHIM Y.C,** Research Scholar for the award of the Degree of Doctor of Philosophy under my guidance and supervision.

The thesis is the outcome of his original work and has not formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title or recognition of any other University /Institutions.

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25/02/2015

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ABSTRACT

Export has assumed an important place in the development of any country and considered as the engine of economic growth. India requires huge amount of foreign exchange for its essential import and for achieving rapid growth. Millions of job opportunities have to be created to utilise the youth for nation building. Even though the country has different sources of foreign exchange, export earning is the safe way of obtaining it in the long run. Export of high valued traditional products not only gives foreign exchange, but also employment to large number of people. Spices are the traditional products of India whose production process is highly intensive in semi and unskilled labour, and high domestic and foreign market prices compared to other traditional products. The new world trade scenario with the establishment of WTO has affected India's spices export considerably.

The study examines the export performance of Indian spices in the WTO regime taking the export of major spices from 1985 to 2013 using the growth of export, trend and instability in growth rate, changes in the composition and direction of spices, export performance ratio and the prospects of spices in earning foreign exchange during the WTO period and Pre-WTO period.

The analysis reveals that the overall performance of Indian spices exports during the WTO regime are satisfactory. Export volume and value increased much during this period. But the decrease in market share of spices export during the WTO period reflects that, the favourable conditions in the international market are not exploited by India. High Revealed Comparative Advantage (RCA) and Value Elasticity (EV) of major spices amidst the low export

shares shows that export performance of Indian spices during the WTO regime was not mainly affected by external demand factors as suggested by Ragnar Nurkse in his Demand Deficiency Thesis, but because of internal supply factors as suggested in Supply Deficiency Thesis, (supported by K.S Dhinsha, Dacosta, Goddamwar,etc.). But the fluctuations of export during the recession and prosperity periods show that external demand is also a determinant of Indian spices export. From this one can conclude that both the domestic supply factors and foreign demand factors influence the export performance of Indian spices. The long term performance of Indian spices exports are mainly influenced by domestic supply factors as suggested by Supply Deficiency Thesis and short term performance is mostly influenced by external demand factors as suggested by Demand Deficiency Thesis.

Key Words:

Spices, Spice products, Value added spices, Spices Board, Export, Export earning, Export performance, Traditional export, WTO, WTO regime, Growth, Growth rate, Instability in growth, Foreign exchange, Comparative Advantage, Revealed Comparative Advantage, Elasticity of Value, Cost of production, Aggregated, Disaggregated, Farming , Organic farming, Quality stipulation

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Y.C. IBRAHIM

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LIST OF ABBREVIATION

AAGR	Average Annual Growth Rate
AEZS	Agricultural Export Zones
AFTA	ASEAN Free Trade Area
AGEB	Alleppy Green Bold
AGEB	Alleppy Green Extra Bold
AGS	Alleppy Green Superior
AoA	Agreement on Agriculture
ASIDE	Assistance to States for Developing
BIMSTEC	Bengal Institute for Multi-Sectoral Technical and Economic Co-operation
CAGR	Compound Annual Growth Rate
CGR	Compound Growth Rate
CV	Coefficient of Variation
DGCI&D	Directorate General of Commercial Intelligence and Statistics
EPCG	Export Promotion Credit Guarantee Scheme
EPR	Export Performance Ratio
EV	Elasticity of Value with respect to Quantity
EXIM	Export Import
FAO	Food and Agricultural Organisation
FMS	Focus Market Scheme
FPS	Focus Product Scheme
FTAS	Free Trade Agreement
GVCS	Global Value Chain
HS	Harmonised System

ICE	International Commodity Exchange
IISR	Indian Institute of Spice Research
IPSTA	India Pepper and Spice Trade Association
ISO	Indian Standard Organisation
ITC	International Trade Centre
MAI	Market Access Initiatives
MDA	Market Development Assistance
OLS	Ordinary Least Squares
PR	Present Rate
QC	Quantity Change
VC	Value Change
RBI	Reserve Bank of India
RCA	Revealed Comparative Advantage
RSCA	Revealed Symmetric Comparative Advantage
SAFTA	South Asia Free Trade Agreement
SAARC	South Asian Agreement for Regional Co-operation
SDV	Standard Deviation
SEZ	Special Economic Zone
TEE	Towns of Export Excellence
COMTRADE	Commodity Trade
UNCTAD	United Nations Commission for Trade and Development
UNIDO	United Nations Industrial Development Organisations
UNO	United Nations Organisation
WTO	World Trade Organisation

Chapter One
INTRODUCTION

SPICES entered into human history around 5000 years before Christ and spice trade has a legacy of 5000 years. Such was the value of spices that hundreds of caravans pulled by camels used to tread across the continents from Kozhikode, Goa and the other parts of East to the ancient spice markets in Babylon, Rome, Alexandria and Carthage. The history of east is full of myths and adventures in which spices were the heroes and heroines. Wars were fought for the supremacy in trade, particularly spice trade. Never one can exaggerate the significance of spices to the West and East. For the East, it was the source of income and variety of other materials, and for the West, it was their life and without the stock of it, it was wild to dream about the winter to come.

From time immemorial, the prosperity and development of societies and regions were attained through the exchange of goods between different civilizations of far reach regions and even between the continents. For centuries, India had been the dream land for navigators to reach in. In ancient and medieval periods, India was the epicentre of global trade. For a long period of time, India has been endowed with much land and labour, but capital was a scarce factor. With this background, India remained better off in the production of natural resource intensive and labour intensive commodities. After medieval period, before independence, India's export mainly composed of plantation crops and raw materials, while the imports consisted of some consumer goods and other manufactures. At that time the structure of India's foreign trade was a reflection of systematic exploitation by the Westerners.

After independence, till 1985 India had followed a strict import substitution policy. But it was a total failure for the industrial development of the country. It led to the rapid increase in the country's import bill and deficit in the balance of payment. This condition compelled India to shift its policy towards an export oriented or outward looking strategy. Prior to reform, India's trade policy was an example of dualism. Several policy measures were against export, but at the same time some measures were taken to encourage export. India's trade policy shift from import substitution to export promotion was not sudden. During the reform period, the country's policy was a mix of both import substitution and the export promotion. It gradually shifted towards export oriented growth as the East Asian Growth Model (Paul W Kuznets, 1988). Restrictions on manufactured exports were removed between March 1990 and March 1993. However, the control on the export of agricultural commodities acted as significant obstruction to the growth of Indian export.

The World Trade Organisation (WTO) came into being on Ist January 1995. A new era of international trade had begun with the establishment of WTO. Even though India introduced policy reforms in July 1991 encompassing various sections of the economy including external trade, trade restrictions on agricultural products were lifted subsequently through different policies and programmes like EXIM Policy, Foreign Trade Policies, Agricultural Export Zones, Special treatment of Special Economic Zone and Regional co-operation and Integration.

India has a well known reputation as the land of spices from time immemorial. Indian spices have much popularity for their flavour in both domestic and foreign markets. They are widely used in different medicines because of their carminative, preservative and

stimulative properties. For long, the country had produced almost all the known spices in the world. Each and every state in India had been gifted with some spices. The diverse agro climatic conditions existing in different parts of the country provide an enormous scope for cultivation of different variety of spices. Out of the 109 spices listed by ISO, India now produces as many as 75 spices in different varieties; of them 52 are under Spices Board of India.

Spices may be dried fruits, roots, seeds or barks of vegetable substance primarily used to flavour, colour or preserve food. "Spices and Herbs are dried parts of various plants cultivated for their aromatic pungent or otherwise desirable substances. This consists of rhizomes, bulbs, barks, flower buds, stigmas, fruits, seeds and leaves. They are commonly spoken of loosely as spices, spices seeds and herbs. Spices are highly esteemed, fragrant or pungent plant products of tropical and subtropical regions, the dominant spices of trade including cardamom, cinnamon, cloves, ginger and pepper. Spices seeds are the tiny aromatic fruits and oily seeds of herbaceous plants including aniseed, caraway, cumin, fennel, poppy and sesame. Herbs are the fragrant leaves of such plant as marjoram, mint, rosemary and thyme" (Encyclopaedia Britannica).

Spices are distinguished from herbs. Herbs are the sub set of spices. They are generally derived from fresh or dried leaves for flavouring or as garnish. But in the definition given by ISO there is no distinction between spices and herbs.

The details of Spices Export of India during the period 2008-09 to 2012-13 is provided in Table 1.1 and Fig 1.1

Table 1.1

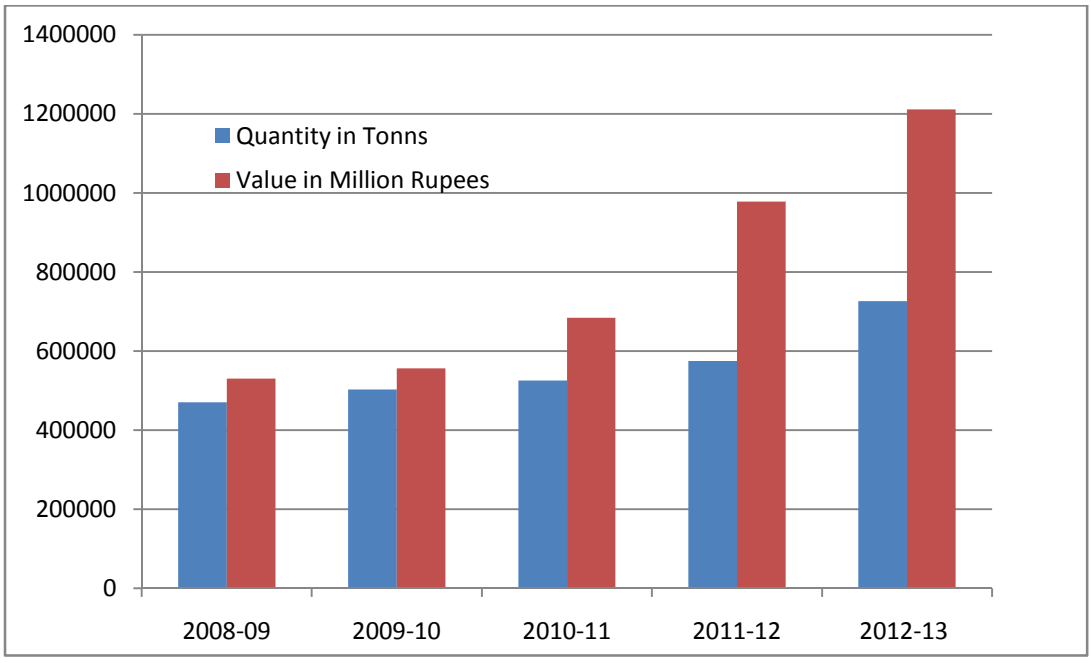
India's Spices Export during 2008-2013

Year	Quantity in Tonnes	Value in Million Rupees	Value in US dollar
2008-09	470520	530025	1168.40
2009-10	502750	556050	1173.75
2010-11	525750	684070	1502.85
2011-12	575270	978342	2,037.76
2012-13	726613	1211275.8	2,212.13

Source: Spices Board of India (2014),Kochi

Figure 1.1

India's Spices Export during 2008-13



Source: Spices Board of India (2014), Kochi

Today India produces number of spices with different varieties. They can broadly be classified into five categories.

1. Major Spices:

Black Pepper, Cardamom (small and large), Ginger, Turmeric and Chillies.

2. Seed Spices:

Coriander, Fenugreek, Celery, Fennel, Caraway, Aniseed, Dill seed, Poppy seed, Mustard, Parsley and Ajwan.

3. Tree Spices:

Tamarind, Cinnamon, Nutmeg/Mace, Clove, Tejpat, Cambodge, Kokam, Curry leaves, cassia, All spices, Asafoetida and Pomegranate.

4. Herbal Spices:

Manjoram, Thyme, Basil, Oregano, Savory, Tarragon, Rose marry, Horse Radish, Hyssop and lovage

5. Miscellaneous Spices:

Vanilla, Garlic, Saffron, Juniper berry, Pepper long, Greater Galaga, Curry Powder, Spice Oils and Oleoresins and Spice Mixtures

1.1 STATEMENT OF THE PROBLEM

The importance of export to economic development has been well documented in empirical as well as theoretical literatures. Various empirical studies proved that, export leads to greater capacity utilisation, incentives for technological improvement, economies of scale, and efficient management because of competitive pressures from foreign counterpart. The classical and neo-classical

economists' argument that international trade could be an engine of growth has come to fore. The trade policy is integrally tied up with the overall development strategy (Kruger O.A 1998).

Export has assumed an important place in the development process of any economy. For achieving rapid growth, a minimum of foreign exchange is necessary for a developing country like India. The three important sources of foreign exchanges are-Export Earnings, Foreign Aids and foreign Investment. Due to the heavy restrictive conditions imposed by the donor countries, the prospects of foreign aids are not bright. Foreign private investment leads to ruthless exploitation of natural resources of the country by multinational corporations and increase in the external influence on the policy and economy. Hence the safest and reliable source of foreign exchange in the long run is export earnings.

India now exports both traditional and non traditional items. Traditional products are the products whose production process is highly intensive in semi and unskilled labours, Since this is the factor with which India is relatively well endowed, export of such products are argued to have been the obvious choice. For centuries India has comparative advantage in the production of labour and natural resource intensive commodities.

As stated by Kamal Nath, the former Minister for Commerce and Industry, Government of India, 'the primary purpose is not the mere earning of foreign exchange, but the stimulation of greater economic activity'. 'Studies have suggested that nearly 14 million jobs were created directly or indirectly as a result of augmented exports in the five year period of Foreign Trade policy 2004-2009' (Anand Sharma 2009).

In the modern globalised world, trade and exchanges between different countries have become inevitable. But Indian foreign trade scenario is not very encouraging even though India is an emerging economy. The share of India in the world trade is still very low. In GDP terms, India is the second fastest growing country, but she ranks 19th in merchandise export and 13 th in merchandise import with only 1.7% share in total world export, while import stands at 2.5%. Recently, India is trying to gain new markets and increase competitiveness in new areas, but it is losing markets in some traditional areas.

India is known to the world as "The Home of Spices" from time immemorial. She has natural comparative advantage in the production of many spices. The demand for spices and spice products are continuously increasing both in the domestic and foreign markets.

But the present international trade scenario, after the establishment of WTO and the subsequent trade liberalization due to the adoption of new EXIM Policy, Foreign Trade Policies, Agricultural Export Zones, Special treatment of SEZ, Agreement on Agriculture (AoA) and regional trading blocs like AFTA, Bangkok Agreement, SAFTA etc. had a major impact on India's agricultural trade. During this period, the levels of comparative advantages of Indian agricultural commodities in the global market have changed significantly and they responded to the new world trade scenario differently.

In this study, the researcher attempts to examine the changing pattern in the export performance, growth rate, trend, composition, direction and comparative advantage of spices and

spice product trade during WTO regime and also compares the performance of export during the Pre-WTO and WTO period.

1.2. HISTORICAL BACKGROUND

"The history of cultivation and use of spices is perhaps the most romantic story of any vegetable product"

(Henry N Ridley 1912).

Indian spices are well known all over the world for their taste and strong aromatic flavour. The history of the world and world trade actually begins with the history of Indian spices. So the history of the spices is as old as human civilization. It is the history of the discovery of new land, wars won and defeated, empires built and brought down, treaties signed and flouted, and the rise and fall of different religious beliefs and practices. So great was the value of spices in ancient and medieval times. Spices were often equated with gold and precious metals at that time.

So any study about spices and spice trade will be incomplete without mentioning their historical significance and background

1.2.1 Spices in the Ancient Period

During the ancient period, people had used spices mainly to enhance or change the flavour of their food. They had also used some spices in order to preserve food like meat for long without refrigeration. Historical evidence shows that, in the sixth century AD, cloves were used to preserve food without refrigeration. Studies show that cloves contain a chemical called ethanol that prevents the growth of bacteria. It is also a natural antibiotic and is still used to preserve food like Virginia ham. Some other spices were also found to have preservative qualities. Historical evidence also shows that, when

spices were not available during certain periods, people could not preserve their food for winter and this led to starvation. Such was the importance of spices in ancient times.

'Spices such as black pepper, turmeric, cardamom and cinnamon have been known and produced in India for thousands of years, with references made in early sacred writings and evidences in excavation sites'(Pruthi.JS 1993). The Vedas, The Bible and The Quran have referred to Indian spices directly or indirectly. The earliest literary records which mentioned Indian spices are the Rig-Veda (around 6000BC),Yajur Veda, Sama Veda and Atharva Veda. Epics such as Ramayana and Mahabharata (Mahindru S.N1982) and both Old and New Testaments of the Bible (Good News Bible, 2010) have mention spices in various places. It is interesting to see that Prophet Mohammed (PBUH) was also an experienced spice merchant (Rosengarten 1969).

Excavations in the Indus Valley area had found that spices were used before 1000BC.Arthasastra written by Kautilya in the third century BC has a number of remarks about spices such as pepper, cardamom, ginger, fenugreek, coriander and mustard (Khan.MT 1990).

India had trade relation with ancient civilisations such as Greeks, Romans, Assyrians, Babylonians, Phoenicians, Chinese and Arabs during the ancient period.

Spices were imported by ancient Egyptians. The major spices of India such as black pepper, cardamom, turmeric and cinnamon have been known in Egypt for thousands of years (Rosengarten, 1969).Ancient Egyptians had used various spices for flavouring their food, in cosmetics and also for embalming their dead bodies as mummies.

There are number of historical evidence showing the importance of South India as a source of superior quality spices even in the period of Babylonian and Assyrian civilizations (Balaraman Nair, 1989). It was stated that when Queen Sheba visited The King and Prophet Solomon in 992 BC, She came with a great company of camels that carried spices and gold in abundance and precious stones.

Ancient Greeks used Indian spices such as pepper, ginger and cinnamon for various purposes. The very commonly used word 'AROMA' is the ancient Greek word for spices. The importance of medicinal values of spices was recognised by Greek medical science also. Hippocrates (460-377 BC), the father of modern medicine, Theophrastus (372-287 BC), the Greek Philosopher and scientist and Dioscorides (40-90 AD), the father of Botany, all had explicitly mentioned spices in their writings. All these clearly indicate that spices were an unavoidable part of the life of human beings even from the very early stage of history (Rosengarten, 1969).

Ancient Romans used spices for many purposes. They used spices not only for flavouring and preserving food, but as cosmetics also. History says that ancient Romans used pepper corns as currency to pay taxes, rents, tolls and even dowries as it was a valuable thing (Mahindru S.N1982). Some early written reports of Pliny (AD 23-79) mentioned even the price of pepper at that time (Rosengarten 1969).He had given the prices of certain varieties of pepper in the report. According to him during that period, the price of black pepper was 4 Denarius, White pepper 7 Denarius and long pepper 15 Denarius per pound. At that time Rome had an active spice trade with Arabia and India. Critical observers blamed that there was a constant drain of gold from Rome to the East. This drain

was in the form of high prices paid for spices, gems, silk, sandal wood and balms.

The spices trade between India and Rome came to an end when Arabs conquered Alexandria in 641 AD. The extension of great influence of Muslim philosophy from Spain (in the west) to China (in the East), by the middle of eight century AD was mainly because of the trading habits of the Arabs.

1.2.2 Spices in the Medieval Period

During the medieval period, India was known to the foreigners as a land of Maharajas, ivory, diamonds, fine textiles, and spices. During this period, spices were extremely expensive and were in great demand by those who could afford them. A pound of ginger was worth a sheep, a pound of mace was worth three sheep or a half cow. Pepper was the most valuable spice at that time. It was counted out in individual pepper corns. A sack of pepper was said to be the worth of a man's life. It is well known that lure of Indian spices were largely responsible for the discovery of a sea route in the 15 th century.

During the age of geographical discovery, Columbus, Vasco de Gama and others had tried to find out more direct sea routes from Europe to the lands of spice production areas in Asia. Vasco de Gama's success in it intensified an international power for control of the spice trade. From then, for three centuries Western European nations such as Portugal, France, Spain, Dutch (Holland) and England fought with each other in order to capture the spice producing areas of East. So the history of spices in the medieval period is the story of exploration, adventure, conquest and fierce naval rivalry. Therefore the story of spices in the East Indies during the 17 th and 18 th centuries was written in blood. This was due to

the ruthless competition and the resultant rivalry between the Dutch, the British and Portuguese for gaining domination over the spices producing countries of the East (Rosengarten 1969).

1.2.3 Spices in the Modern Period

The international spices market until the 16 th century was exclusively centred in India. But during the subsequent centuries the situation has changed considerably. With the discovery of the American continent, new spices entered in to the world market including allspice, bell and chilli pepper, vanilla and chocolate as products. Similarly new spice producing countries entered in to the trading group. Substantial spice plantations were established in different parts of world such as in countries of the Central America, South America, Africa and East Asia. Now cardamom is produced in large quantities in Guatemala; pepper is being produced in Brazil, Vietnam, Indonesia, Madagascar, Malaysia, Thailand etc. China and Pakistan are the major countries competing with India in the international ginger and chilli market. India is facing severe competition from Morocco, Egypt and Iran in the field of coriander, cumin seed and aniseed.

In the modern era, a large number of initiatives were undertaken by the government since 1950 in order to develop new technologies for spice processing and packaging and to address agronomic and marketing problems of Indian spices. India assumed a leadership role when a sub-committee on spices and condiments was formed in the early 1960s at the International Organisation for Standardisation (ISO).International Pepper Community was established in the year 1972 in which India was one of the founder members. As an apex body for the promotion of spice export, the Spices Board of India was established in the year 1987. It regulate

the export of spices and provide a coordinated support to the development and promotion of India's spices export, ensuring quality control and giving export licenses. In the year 1988, the All India Spices Exporters Forum was formed as an industry association to liaise with the Spices Board and other governmental departments and agencies. It provides technical, regulatory and other information to its members.

Another important development in the history of Indian spices trade is the beginning of international pepper exchange under the auspices of IPSTA-ICE. It was inaugurated in the year 1997 at Cochin, Kerala. It is regulated by Markets Commission of India, and functions under a steering committee constituted by the Government of India for the purpose. It is expected that, the exchange would help India to regain the past glory of becoming the centre of the world spice trade (Rosengarten 1969).

1.3 SCOPE OF THE STUDY

The study 'Export Performance of Indian Spices in the WTO Regime: A Disaggregated Analysis' has been undertaken to evaluate the performance of major spices and spices products in the WTO regime. India is known to the world as the 'Home of Spices' from time immemorial. India is the world largest producer, consumer and exporter of spices and spice products. India produces more than 70 types of spices and exports them to more than 150 countries around the world. A study about all these spices and spices products, and also the export to all countries, are beyond the scope of the study. In this study the researcher has selected only 13 spices and spice products for the performance study and only major countries of the export destination for analyzing the changing the direction of trade.

1.4 OBJECTIVES OF THE STUDY

The basic objective of the study was to examine the changes in the export performance of Indian spices during the WTO regime. Considering the recent Indian as well as world trade scenario, the study was initiated with the following specific objectives.

1. To analyse the growth in the export of major Indian spices and spices products during the Pre-WTO and WTO period.

2. To examine the instability and trends in the growth rate of spices export during the Pre-WTO and WTO period.

3. To examine the changes in composition and direction of Indian spices export during WTO regime.

4. To find out the export performance of various spices and spices products during WTO regime and to compare the performance with Pre-WTO period.

5. To find out the prospect of major items of spices and spices products to earn foreign exchange.

1.5 METHODOLOGICAL ISSUES

1.5.1 The data

The study is exclusively based on secondary data. No specific geographical delimitation is brought into effect in this study on account of the peculiarity of the research topic. So, time series data related with spices and spice products of both India and other countries, obtained from official sources have been taken into account. For obtaining data, 6 digit level Harmonised System (HS) of classification of UN is considered.

Data were obtained from

1. COMTRADE Statistics1988 to 2013
2. WTO Statistics,2014
3. FAO Trade Year Book1985 to 2014
4. FAO Production Year Book1985 to 2014
5. Spices Board, Cochin1985 to 2014
6. RBI Hand Book 2014
7. RBI Bulletin1985 to 2014
8. Directorate of Commercial Intelligence and Statistics 1985 to 2014

1.5.2 Tools and Analytical Models

The data collected were analysed using different analytical tools which have been widely used all over the world. Some statistical and mathematical software like Excel and Gretl were used for analysis.

The important Statistical and Mathematical tools, and analytical models used in this study are-

Simple Growth Rate

The growth of exports of major spices of India during the WTO period and pre-WTO were calculated on annual basis and average of five years, ten years and eighteen years using simple growth rate.

[Growth rate = (Ending Value - Beginning Value) / Beginning Value] expressed in percentage

ie.

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} x100$$

Where, PR = Present Rate or Growth Rate
V present = Present Value and,
V past = Past Value

Average Annual Growth Rate (AAGR)

AAGR = (Growth Rate in Period A + Growth Rate in Period B + Growth Rate in Period C + ...Growth Rate in Period X) / Number of Periods

Compound Growth Rate (CGR)

The growth of export of major spices and spice products for a period of 28 years from 1985-86 to 2012-13 were also computed using Compound Annual Growth Rate (CAGR) analysis. For comparing the growth rate between the Pre-WTO and WTO period, two periods were taken as 1985-86 to 1994-95 as period I and 2003-04 to 2012-13 as period II.

$$CAGR = \left(\frac{\text{Ending Value}}{\text{Beginning Value}}\right)^{\left(\frac{1}{\#\text{ of years}}\right)} - 1$$

Standard Deviation

The extent of variability in the growth rate of export of major spices over the years, were analyzed through Standard Deviation

$$s_N = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \overline{x})^2},$$

Method of Least Squares

The export growth trend of various spices and spice products from 1985-86 were obtained by using the method of least squares.

This method is an algebraic device and widely used. It gives us a straight line from which the sum of the deviations on either side will be equal to zero.

$Y = a + bX$

Where

b = r (STDV y/STDV x)

$r = [N\Sigma xy - \Sigma x \Sigma y] / \text{Sqrt}\ [N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]$

a =Y bar-b (X bar)

b = The slope of the regression line

a = The intercept point of the regression line on y axis.

X bar = Mean values of X

Y bar = Mean values of Y

STDV x= Standard Deviation of X

STDV y= Standard Deviation of Y

Balassa's Revealed Comparative Advantage (Export Performance Ratio)

The performance of various spices and spice products during the WTO period and the comparison of the performance during the Pre-WTO and WTO period are done using the RCA analysis. RCA Indices used to find out the products in which the country has comparative advantage, by comparing India's spices trade with world average.

$$RCA = \frac{Ei / CE}{Wi / WE}$$

Ei= Export of i^{th} commodity from the country

CE= the aggregate export of the country

Wi= total world export of i^{th} commodity

WE= aggregate world exports during the period.

RCA takes the value between zero and positive infinity. If RCA >1, the country has comparative advantage in export of that commodity and vice versa (Balassa 1965) .Change in RCA between two periods shows the change in comparative advantage in that product during the same period.

Elasticity of Value with respect to Quantity

For comparing the performance under the Pre-WTO and WTO regime and also to find out the prospects of earning foreign exchange, Spice exports during 1985-95 (Period I) were compared with that of 2003-13 (Period II)

Changes during the two periods were analysed by change in Quantity (QC) and value (VC) and elasticity of value with respect to quantity.

$$EV = \frac{VC}{QC}$$

$$VC = \frac{(\text{Value in period II} - \text{Value in period I})}{\text{Value in period I}} \times 100$$

$$QC = \frac{(\text{Quantity in period II} - \text{Quantity in period I})}{\text{Quantity in period I}} \times 100$$

EV >1 means unit value realization from exports of that particular product is on increase. Higher the EV, greater is the prospect for that product to earn Foreign Exchange for that country (Datta 2001)

Chow Test

In order to find out whether there is a structural change in the growth of spices export between two periods-Pre WTO and WTO ,a popularly used test known as ' Chow Test ' is used

$$F = \frac{(RSS_R - RSS_{UR})/ k}{(RSS_{UR})/ (N_1+N_2-2k)}$$

The test statistic follows the F distribution with k and N_1+N_2-2k degrees of freedom

Where, RSS_{UR}= RSS1+RSS2

RSS_R= RRS3

RSS_1= Residual Sum Squares (for period 1985-86 to 1994-95)

RSS_2= Residual Sum Squares (for period 1994-95to 2012-13)

RSS_3= Residual Sum Squares (for period 1985-86 to 2012-13)

K=2, n_1= 10, n_2=18

Here the null hypothesis is that there is no structural change between the pre-WTO and WTO period. If P>0.05 the hypothesis- *'there is no structural change between two periods'* is accepted. If P< 0.05 the hypothesis is rejected it has to be concluded that there is a structural change in the growth of export of spices during the two periods.

1.5.3 Period of the Study

The study is based on the time series data of 28 years from 1985-86 to 2012-13. Since the data related with the world export of spices are available from 1988, for the calculation of RCA Index only a period of 23 years from 1990 to 2012 is considered. This period includes both the Pre-WTO period WTO period and also the latest data related with the study.

1.6 CHAPTER SCHEME

This research work is presented in seven chapters. The first chapter deals with the introduction, research problem, history, scope, objectives, methodology, limitations and scheme of the study. The second chapter deals with an extensive review of relevant literature for providing a holistic view of the topic and to find the research gap. In the third chapter an attempt is made to give an overview of India's spices export. The fourth chapter discusses the growth, trend and variability of spice export during the WTO period. Similarly, the fifth chapter provides the composition and direction of Indian spices export during the WTO Regime. In the sixth chapter the performance of spices export during the WTO regime is discussed using Revealed Comparative Advantage and Elasticity of Value with respect to quantity approach. Chapter VII-summarizes the study and provides the emerging suggestions.

1.7 LIMITATIONS OF THE STUDY

In the social sciences, studies used to face various limitations. So this study is also not free from limitations. The important limitations of this study are:

1. This study is exclusively based on secondary data because of the nature of the study

2. Data are obtained from different sources. So there has been problem of obtaining sufficient homogeneous data from all sources

3. The study is confined to the export of major items of spices and major countries of destination, not all spices and countries

4. Even though the analytical models used in this study are widely used methods all over the world for studying this type of problems, they are also not free from limitations

5. The data obtained from different sources based on different classifications are used for studying different objectives.

6. UN Comtrade data are available only from 1988 to 2012; RCA is computed only for a period of 23 years.

Chapter II
REVIEW OF LITERATURE

INTRODUCTION

Spices have an important place in the agricultural economy of the world especially India. A large number of studies have been conducted on different aspects of spices such as economic, political, historic, cultural, medicinal, religious, commercial etc, and published as research books, articles and reports. A comprehensive review of literature relevant to the area of research is essential in order to derive intellectual and practical solution to the problem through the application of scientific methods and to understand the work already done in this area. This chapter provides an overview of a few literature and studies from the vast literature available on various aspects of study area and tries to include all the available literature related to the topic. Broadly the literature is divided in two – Theoretical literature and Empirical literature.

2.1. REVIEW OF THEORETICAL LITERATURE AND CONCEPTUAL CLARIFICATION

In this part an attempt has been made to review the major theories and concepts regarding the international specializations, gain from trade, trade and economic growth, export performance and its determinants, the trade scenario after the establishment of WTO, regional integration, bilateral and multilateral agreement and trade etc.

2.1.1 REVIEW OF LITERATURE ON TRADE, GAIN FROM TRADE, AND TRADE AND GROWTH

The concept of comparative advantage was originally introduced by the Classical Economist David Ricardo to explain the basis of international trade. According to him, the basis of international trade is not 'absolute' advantage as stated by Adam Smith, but 'comparative' advantage. He stated that, even if one country has absolute advantage in all line of production over the other country, it can still benefit from international trade by specialising in the goods where its comparative advantage is more (Dominick Salvatore, 1998).

In order to identify in which item of commodity or industry a country has comparative advantage, one require only observing the sign of the difference between free trade and autarkic relative prices. If the sign is positive, the country has comparative advantage in the production and export of that particular item; if the sign is negative, the country has comparative disadvantage in it (Deardorff, 2004).

The oldest theory of the gains from trade is the neoclassical theory of international trade and real national income. This theory is based on the classical proposition that countries can mutually gain from trade. Till recently, the theory which dominated in the international trade was Heckscher-Ohlin "Factor Endowment Theory", which states that, under a given set of assumptions, a country would export those commodities that use intensively its more abundant factor of production; i.e. a country has a comparative advantage in commodities, which suit its factor endowments, and it is the difference in factor endowments between countries which gives rise to international trade (Dominick Salvator, 1998).

Several Economists have established that there exists a positive relationship between trade and economic growth. One of the well known studies in this area is done by Alfred Maizel (1968). He has postulated that the essential determinants of growth in primary producing countries are their ability to increase the capacity to import.

K.S. Dhindsa (1981) has discussed the causal relationship between export and economic growth. According to him, export contributes to economic growth in three ways.

1. Other things remain the same; economic growth implies an increase in GNP.

2. Export industries affect the growth of economy through their effect on other industries due to the existence of interdependence among industries. Export accelerates the capital formation, technical change and reallocation of resources.

3. Since exports is the main sources of foreign exchange, it leads to growth via import of capital and intermediate goods, their availability is essential for transferring savings into investment. If the gain from trade is more, then the faster would be the process of economic development.

2.1.2. REVIEW OF LITERATURE ON EXPORT AND ITS DETERMINANTS

Export earnings of developing countries are not encouraging for the past several decades. Two schools of thought have been developed to explain stagnant export earnings. One argues that stagnation was due to deficiency in demand in the developed industrial countries (Demand Deficiency Thesis) and the others

attribute to a deficiency of their supply from the developing countries (Supply Deficiency Thesis).

2.1.2 (a) Demand Deficiency Thesis

Ragnar Nurkse (1959) was the chief advocate of Demand Deficiency Thesis. According to him, trade was an engine of growth for developing countries in the 19th century, but in the 20th century, trade did not work as a powerful engine as in the 19th century. According to him this was due to the slowing down in the rate of expansion in the demand in the industrial countries for the traditional export of the developing countries.

Supporting the Demand Deficiency Thesis, Raul Prebisch and R.W. Singer (1950) argued that, low income elasticity of demand in the industrial countries for the primary products of developing countries are partly attributed to the secular decline in the prices of primary products in terms of manufactures (Secular Deterioration Thesis)

According to Maizels (1968), the retardation in the export of some developing countries was due to the slow growth in the world demand for their primary products.

2.1.2 (b) Supply Deficiency Thesis

Economists like Cairncross, BiedaDecosta and Dhindsa supported the Supply Deficiency Thesis. K.S. Dhindsa (1981) in his study on "India's Export Performance" found that exports of traditional items are badly affected not by external demand factors, but because of internal supply factors.

Dacosta and Goddamwar (1988) in their study on "Export of Agricultural Commodities from India" proved that the relative

incentive to sell in the export market was frustrated by inadequacies of domestic suppliers.

2.1.2 (c) Other Determinants of Exports

McGeehan (1986) pointed out that non-price factor such as quality, design and marketing are equally important in determining the competitive position. Design can be interpreted to include performance, reliability and appearance. The role of marketing in increasing exports and sales is assuming greater importance as the international market is becoming increasingly competitive. The study undertaken by him in many western countries had found that there is a relation between price and export performance. According to him "The share of individual countries in the foreign export volume are inversely related to their export prices". Dacosta and Gaddam War (1988) also found similar conclusion in their study.

Ball, Eaton and Steuer (1966) have studied the impact of internal demand pressure on British export performance. They have arrived at a conclusion that the short run variations in the volume of British export were inversely related to the pressure of internal demand. This is in accordance with the classical view that, the domestic demand reduces the quantity available for export.

2.1.3. Review of literature on Export Performance, Its determinants and Measurement

Export performance is considered as the relative success or failure of the efforts of a nation or firm to sell domestically produced goods and services in other nation.

Keld Laursen (1998) in a published paper has given the analysis of Balassa's Revealed Comparative Advantage (RCA) to explain the export performance of a country. He has compared

Balassa's Revealed Comparative Advantage (or Export Performance Ratio) with other measures of international trade specialisation such as Michaely Index (and the CTB measure) and the Chi square measure. This report analysed the properties of the RCA index conducting empirical study and concluded that, the best measure of comparative advantage is the Revealed Symmetric Comparative Advantage (RSCA).According to him Revealed Comparative Advantage (RCA) has been applied in large number of reports (Eg: UNIDO; 1986, World Bank 1994) and academic publications (Eg: Aqhino 1981; Crafts and Thomas 1986; Van Hulst et al 1991; Lim, 1997) as a measure of international trade specialization.

Amelia U. (2002), examined the impact of trade liberalization on export growth of some of the developing economics using the export demand function approach, applying dynamic panel data model based on fixed effects and generalized methods of moments estimators. According to her export performance may be expected to depend primarily on-

1. Relative prices of the commodities. Relative price is the price of a country's exports relative to the foreign price of related goods expressed in common currency.

2. World income, which actually determines the demand for a country's goods.

Her findings provide empirical evidence supporting the positive impact of trade liberalisation on export growth of the country.

The main empirical findings of the investigations are-

1. Increase in relative prices affects the export growth negatively.
2. There exists a positive relation between the external demand and export growth.

3. Export duties affect the export growth negatively because; it is an indicator of trade distortion.
4. Important determinant of export performance is the process of trade liberalisation.

Macro Fugazza (2004) analyzed the export performance and its determinants in his studies 'Policy issues in International Trade and Commodities' published by UNCTAD. According to him, there is no clear policy implication emerge from economic literature, which clearly states the relationship between the trade liberalisation and economic growth. It is the empirical observations which strongly assert the positive correlation between the output growth and export performance.

Determinants of export performance can be split into internal and external factors. Internal factors are related to supply side conditions of the exporting country and external factors include foreign market access/entry conditions and a country's location.

Internal factors i.e. supply side components are influenced by

1. Location and the policy variable of the country
2. Size of the country
3. Economic policy of the country
4. Development variables like technology, public investment etc.

External factors i.e foreign demand is influenced by various elements.

1. Geographical condition of nation –It implies that, other thing remain the same, countries situated at the centre of a fast growing region are more likely to be benefited from trade than others.

2. Competition and Trade policy. This creates similar impact on trade like geography.
3. The quality and quantity of physical infrastructure. They are the development components which are expected to play important role in the modern world.

Looking at the respective determinants of export performance, the study revealed the important differences across countries and regions. As far as Asian countries are concerned, both the internal and external factors prove to have played more or less an equal role in determining of export performance. But for sub – Saharan African countries external factors are more important than internal factors.

UNCTAD (2005) in its report analyzed important trade and development issues facing developing countries. The report says that export performance cannot be the only good fortune to be producing goods in high demand; rather, it is likely to be the outcome of a combination of various elements framing the production environment and export product's access to international market. The report gives the result of empirical investigation conducted by the UNCTAD secretariat regarding the determinants of export performance of both the developed and developing countries. It stated that the relative importance of demand and supply factors change from country to country depending to a great extend on the stage of development of external sector. The foreign market access is the demand factor and which is a critical determinant of export performance. Market access can be improved through WTO negotiations on tariffs and non tariff barriers, trade adjustment and policy space, regional economic co-operation and integration etc.

Luca De Benedicties et.al. (2001) in a seminar paper presented in the University of Ancona, Italy has given a note on the Balassa's

Revealed Comparative Advantage Index measure and normalization of original index. According to them, countries will specialize in the production and export of goods in which they have a comparative advantage. But, when one moves from theory to measurements, a major problem arises. Prices under relative autarkic condition are unobservable variables, and it hampers the measurement of actual or shadow comparative advantages. In order to overcome this obstacle, in empirical literature there is a customary practice to analyse specialization pattern using Revealed Comparative Advantage (RCA) measures. According to them usual approach of RCA is used to compare sectoral shares of the nation with their international analogous and to infer the existence of comparative advantage through the examination of actual output and /or trade flows as done by Balassa and others. The first and still most widely used RCA measure built on exports is the only information variable is the Revealed Comparative Advantage Index developed by Balassa (1965).

They have given the RCA index measure used by Balassa in the paper. If we are 'c' to denote a specific country, 'w': the world economy or the entire set of countries considered in the analysis,'s' a specific sector then,

RCA or Balassa index is $\frac{Xcs}{Xc} / \frac{Xws}{Xw}$

They have given two other index developed by Laursen (2000) and Proudman & Redding (1998) to remedy some of the short comings of the Balassa index. By using the RCA measurement they have calculated the RCA of Italy, France and Germany in different sectors.

P. Arunachalam (2013) in an article titled 'Is ASEAN Free Trade Agreement for Asian Economic Integration?' analysed India's Free Trade Agreement with ASEAN. The objective of the study was to analyze the problem and prospects of the FTA for India, particularly farming and fisheries sectors. According to him the increase in India's share of world exports between 2000 and 2008 was just 0.4%, but it was around 5.1% in the case of China. Nearly half of the world trade is being conducted in the frame work of various regional arrangement in which India had no option. Free Trade Agreement with ASEAN is significant for the reason that it is the first multilateral trade agreement entered into by India. It connects India with one of the most dynamic growth areas of the world.

He concluded that in a free trade area, competitiveness decides the pattern of trade flows. Therefore, free trade agreement with ASEAN offers a wide market for Indian exporters. Competition in the domestic market with ASEAN and exposure to new markets could develop India's competitiveness in new areas, both in agriculture and in industry.

2.1.4. Review of Books on Spices

Gibbs (1909) in his book "Spices and How to Know Them" analysed the early history of spices. According to him, the term spices and condiments are applied to those articles which, while processing in themselves no nutritious principles, are added to food to make it more palatable and stimulate digestion. According to him the different grades of spices take their names from the country or city from which they are exported, each different kind having a flavour of its own. Best grades come mostly from Penang, and are called 'Penang Spice' while spices of nearly as good a quality comes from ports of Malabar.

Ridley (1912) in his book "Spices" stated that, 'the history of the cultivation and use of spices is perhaps the most romantic story of any vegetable product'. According to him, from the earliest known eras of civilisation, spices were eagerly sought in all parts of the world. The earliest explorers in their search after gold, paid almost as much attention to drugs and spices, and it was the pursuit of these as much as anything which led to the first rounding of the Cape of Good Hope, and the colonization of the East Indies. According to him the greater part of the spices that have been valued by man are derived from the Asiatic tropics, while the other quarters of the globe have produced comparatively few. Pepper, cardamom and cinnamon are the natives of Southern India and Ceylon.

Parry,J.H. (1994) in his book "Europe and a Wider World; 1415-1715" analysed the dominant influence exerted by Europeans outside Europe. According to him the expansion of Europe was not a deliberately planned one; nor was it willingly accepted by non-Europeans, but in the 18th and 19th centuries, it proved irresistible; so much so, that the Western nations devoted much of their energy to quarrelling over the spoils. It was the valuable products- spices- of India that led them to quarrel with each other. According to him although India was known to Europeans only by hearsay, its products were known to them very well.

Rosengarten F, (1969) a well known writer on spices in his book "The Book of Spices" examined the history of spices. He stated that some of the spices known in India today such as black pepper, cinnamon, etc. were known in Egypt for thousands of years and were included in ancient herbal medicines. He has classified spices into 'major spices' (5 items) and 'minor spices' (42 items). He considered pepper, cardamom, chillies, ginger and turmeric as major spices and

described the various aspects of these spices in the book "Spices and condiments".

John W. Parry (1969) in his book titled "The Story of Spices" stated the places of pepper cultivation and the uses of pepper. Accordingly, pepper is cultivated in many tropical and sub-tropical parts of the world including India, Ceylon, Malaysia, Indonesia, Thailand and Brazil. Both black and white pepper berries are imported whole by spice merchants. Both of them have numerous culinary uses including seasoning and flavouring of meats, soups, fish, vegetables, eggs, sauces, salads, etc.

J.S. Pruthi (1976), in his book "Spices and Condiments" described the different varieties of black pepper in the world trade. According to him different items of spices have taken their names from the localities where they are grown or port through which they are exported. He also explains the processed forms of black pepper and its various uses by people in different countries.

Purseglove et al. (1981), in their books "spices" graded the standards of pepper producing countries. In their opinion, among the three major pepper producing countries viz. India, Malaysia and Indonesia, India has the most advanced system of grading and standard fixing. According to them government has prescribed the obligatory grading and standardisation of a large number of agricultural products under the label of 'AGMARK' both in the country and abroad.

Som Nath Mahindru (1982), in his book "Spices in Indian Life" explained the role of spices in the Indian life from 6500 BC to the middle of 20th century. The Portuguese merchants tried to possess pepper from Malabar region and sought the permission of Zamurin (The Ruler) of Calicut to trade in Kerala. In addition to it, they took

away numberless pepper vines by force in order to cultivate it outside India. They thought that they can grow them there and could make more money. However, the Zamurin knew that the Portuguese would not be successful. The remarks made by Zamurin at that time is still popular in Kerala "They can very well take away all pepper vines from us, but how they can steal the Thiruvathria Nattuvela (Peculiar Climatic condition) from us"?

Nadakumar (1996) in his book "Global Spices Trade and the Uruguay Rounded Agreement" stated that the spice sector has been characterised by unplanned production. The result of unplanned production is the volatile markets with widely fluctuating prices. Unplanned production has also turned spice producing countries into 'prices followers' rather than 'price setters'. According to him some spice producing countries have fallen in to the low quality low price trap. Because of the small quantities produced and their widely varied indifferent quality, these countries have been forced to sell spices at low prices. This results in bringing down international prices significantly at low level.

Farroqi AA et al (2005) in their book "Cultivation of Spice Crops" described that, globalisation and liberalisation of world trade in agriculture and the resultant changes in economic order has opened up new vistas of growth. One of the important areas in which India has domination in the global market traditionally is spices. According to them in the new world environment, for international food marketing, quality competitiveness has become very important.

Ian Burnet (2011), in his book "Spice Islands" analysed the history of spices and spices trade, the history of trade routes, discovery and exploration etc. The book gives many uses of these

exotic spices and the history of these trades over the period of more than 2000 years.

2.2. REVIEW OF EMPIRICAL LITERATURE

Several empirical studies have been conducted in different aspects of spices, but only few are available in the spices exports. In this section an attempt is made to examine the major earlier empirical work done in the spices exports in the export performance studies in general and also the studies related with other products.

2.2.1. Empirical Literature on Spices, Spices Export and Export Performance of Spices

Baby Jacob (1985) in his PhD thesis titles "A Blue print for Export Development of Kerala – A Study on Selected Agricultural Products" stated that Kerala has had enjoyed vertical monopoly over the export of spices, cashew kernels, seafood, coir and coir products. In case of some of these items the monopoly was lost already, while in some other items it was under threat. His study was a review of the policies of the government and an evolution of performance and programmes of the various organisations with the responsibility of the development of respective agricultural commodities.

He suggested that Government has to adopt comprehensive and time bound programmes to increase production and productivity, to recapture market share, to develop new markets, to maintain consistency of quality, to promote new products and to attain an overall growth rate commensurate the increasing world demand for spices.

Muhammed Sajjad (1987) in his article 'India's Cardamom Trade with Middle East' pointed out that; there is a change in the pattern of India's cardamom trade with Gulf countries. He has given

a detailed explanation on the economics of cardamom cultivation and the future prospects of the product. According to him, high price of Indian cardamom is the reason for declining export volume. Therefore a competitive pricing strategy is the only solution to overcome the problem.

Gopinatha Menon (1988) in his PhD thesis 'Processing Procurement and Marketing of Pepper with Special Reference to Co-operative Sector' has made a detailed study of the various aspects of production, processing and marketing of pepper. His study has mainly emphasized the cultivation, processing and marketing aspects of pepper. He has analysed the domestic and international market for pepper, problems and suggestions for improving the return of the producers and traders, the role of co-operative societies in the field of pepper marketing etc.

Paul (1992) in his article titled 'Agriculture Export of India-Issues of Growth and Instability' stated that the least developed countries have comparative advantage in the production of many agricultural products. But the comparative advantages enjoyed by these countries are not exploited by them. According to him, the poor bargaining power in the international market and, tariff and other protection strategies followed by developed countries is the reason for the lack of utilisation of comparative advantage. He also opined that the agricultural export of developing countries is fluctuating and this affects their economic growth.

Jeromi et al (1993) in an article titled 'World Market and India: An Analysis of Growth and Instability' examined the growth of world pepper market for the period of 1975- 1990. Their finding was that, among the exporting countries, Sri Lanka recorded the highest Annual compound Growth Rate (CAGR) of 24.59% during the study

period. But it was mainly due to its low base in the initial years. In the case of India, the growth was positive and statistically significant. The growth rate of pepper producing countries was statistically not significant.

Mamatha (1995) in her thesis 'Export Trade of Selected Spices in India- An Economic Analysis', estimated the growth rate of production and export of selected spices for the period from 1970-71 to 1991-92. For the study she has taken pepper, ginger, turmeric and chillies. She found that, the positive growth rate in respect of production and export of these spices was due to the increased demand from international market and domestic production. In her study she also found that the increased domestic production and export of spices were mainly because of the measures taken by the Spices Board of India such as improved methods of production, assistance for the export of spices by setting of facilities for up grading quality and technical advice on scientific post harvest operations and processing.

Madan (2000) in his article 'The Indian Black Pepper, Economics and Marketing' described the state of black pepper industry in India at that time in relation with the international pepper market. It also examined production of pepper and value added pepper products and their economic contribution, fluctuation in pepper price in the international market and its impact on the industry, the direction of export of pepper at that time and the future of Indian pepper in the international market.

Jayesh (2001) in his MSc thesis 'Production and Export Performance of Pepper and Cardamom in South India- An Economic Analysis' has examined the production and export performance of the two important spices i.e. pepper and cardamom. In his Study he

found that, all the South Indian States except Karnataka (-0.47%) and Tamil Nadu (-1.62%) recorded growth in areas and production of pepper. But in the case of cardamom all the South Indian states record a negative growth in area, while there is a significant growth in production and productivity. He also found that there is a positive growth in unit value, export value and export quantity of pepper, but negative growth was recorded in the export of cardamom during the study period.

Economic Times (2001) in a report 'Global Recession and Indian Spice Export' reported by quoting the Spices Board official that global recession at that time dropped the prices of Indian spices in the global market. India's spices exports had fallen 9.7% in the seven months of 2001 from 1.44 lakhs tones of previous year to 1.3 Lakh Tonnes. Report quoted the official of spices board that 'down trend in Indian spices exports including small cardamom, coriander and cumin continues and can be attributed to fall in demand in importing countries including the US, European Union and Japan, which are reeling under economic recession.' At that time India was also facing stiff competition from other spice producing countries like Guatemala which did not have much domestic market for spices and had an export oriented production. Those countries were offering their products at very low prices in the international market.

Philip. A.P. (2003) in his PhD thesis 'Marketing of Spices: A Study with Special Reference to Pepper and Cardamom' analysed the marketing of spices with the objectives of major factors influencing the marketing, the role played by the spices Board of India in the marketing, the future prospects of the Indian Spices in the changing global economic scenario taking the data from 1998 to 2002. He used statistical tools like averages, percentages, ratios and Chi-Square test for the analysis. He found that domestic and

international markets offer plenty of opportunities to Indian species, provided, one is able to commute the emerging challenges effectively.

Manju (2004) in her MPhil dissertation titled 'India's Spice Exports with Special Reference to Cardamom' stated that 80 percentage of export earnings from spices are coming form few spices. There exist wide instability and fluctuation in export earnings. So, adequate steps have to be taken to widen the export basket of spices by including new spices like vanilla, paprika, herbal spices, medicinal spices and organic spices. India's exports of spices are only 8 percent of the total spice production

Douglas et al (2005) in their report 'Herbs, Spices and Essential Oils: Post – harvest Operations in Developing Countries' examined different spices, essential oils and herbs, and their post harvest operations in developing countries. According to them the most important spices traditionally traded throughout the world are products of tropical environments such as – pepper, cardamom, ginger, cinnamon, turmeric, capsicums, vanilla, nutmeg/ mace, cloves and all spices/ pimento. The important spices crops from non- tropical environments are cumin, coriander, mustard and sesame seeds and the oregano, herbs sage, mints and the thyme bay.

Their report shows that there are 40 to 50 spices of global economic and culinary importance. There is also large number of spices that are used in traditional cooking in the area of their natural occurrence but they do not reach in market. There is well known stable, long term internal market for major spices, but they are facing competition from other spices producing countries.

Peter et al, (2005) in their article 'Spices Production and Export from India, Scenario through Five Decades' examined the spices production and exports from India for a period of 40 years from 1960

to 2000. They stated that the export quantity and export earnings during the study period showed an increasing trend except for five years which showed a decreasing trend in quantity. They reported that the export earnings from spices was only ₹ 16 crores during 1960- 61 and it increased to ₹2025 crores during 1999- 2000.

Hema et al (2007) in their article 'Volatile Price and Declining Profitability of Black Pepper in India: Disquieting Features' analysed the instability in the price of black pepper plunged down to ₹74/kg from a peak of ₹ 250/kg of 1999- 2000. They examined the profitability of the pepper cultivators and analysed the price behaviour and the mechanism of price transmission in black pepper. According to them, until new and diversified export market for pepper is not exploited; the farmers would suffer due to a further crash in gate price due to huge surplus stock.

Ibrahim.Y.C (2007) in his MPhil dissertation 'Export Performance of Indian Spices in the WTO Regime: A study with Special Reference to Pepper' has given the findings of the study. According to him, out of the 16 major spices and spices products, fourteen are potential for export and promotion of their export are desirable as far as their export earnings are concerned. He also found that WTO has an unfavourable effect on Indian pepper export, but the introduction of WTO compatible Export Subsidy Schemes for pepper had a favourable impact on the pepper export in recent years. He also found that the poor performance of pepper export was mainly due to the high domestic demand.

Sujatha .R.V. et al (2007) in their article 'Structural Changes in Pepper Export from India- An Econometric Analysis' stated that during the WTO regime, the newly emerged spice producing countries pose a substantial threat to traditional exporters like India.

New entrants do not have much domestic market, which compels them to sell their products at cost price or even below it in foreign market. Their attempt was to study direction of trade of pepper in the new world trade scenario by dividing the study period into two- Pre WTO (1981- 82 to 1994- 95) and Post WTO (1995-96 to 2003- 04). The analysis was by using Markov Chain Model. They found that during the pre-WTO period, USA & USSR were the stable export markets for Indian Pepper, but during WTO period, USA and Canada were comparatively stable markets. Germany and Italy were the most unstable markets for Indian spices during the both periods.

The Economic Times (2008) in a study report stated that the country's seeds spices exports skyrocketed by 95 percentages to ₹ 116.80 cores in the first seven months of the fiscal year because of the strong demand in the global market. The news paper had given the statement of the Spices Board that over all spices exports in seven months of that year have gone up by 7 percent in terms of quantity and 14 percent in terms of value, but it is still lower what our country was expected. According to the report 'Had there been no economic crisis at the global level, the exports would have been more'.

Thomas T.P. (2009) in his PhD thesis 'Problems and Prospects of the Spices Trade in Kerala' studied the problems and prospects of the spices trade in Kerala with the objectives of finding the problem and prospects of black pepper and cardamom, the origin and growth of spices trade, the performance of black pepper and cardamom sector, the impact of WTO agreement and India's free trade agreement on spice trade in Kerala. The study covered a period of ten years (from 1997- 98 to 2006 - 07). He used the arithmetic such as average, percentage and, statistical tools such as trend analysis,

weighted mean, chi- square test and Friedman's repeated measures analysis of Variance (F-Test) for analysing the data.

He found that, at the global level, pepper and cardamom from Kerala are facing stiff competition from other major producing countries like Vietnam (for Pepper) and Gautemala (for Cardamom). India's dominant position in the global supply of these products is declining and India is losing her big heritage. There is a pepper and cardamom crisis in Kerala.

Krishna Das M. (2010) in his thesis 'Production and Export Performance of Major Indian Spices – An Economic Analysis' has given the result of his study on the production and export performance of India's major spices from 1979 – 80 to 2006 – 07. Objectives of his study were, to examine the growth in production, productivity and the area of major spices, to find out the instability in production of major spices, to analyse the growth in exports, and find out the direction of major spice trade.

He used four important tools for the analysis of data such as Compound Growth Rate Analysis, Instability Analysis, Markov Chain Model and Regression Analysis. He found that the growth in area under chilli was found to be negative, while production showed increasing growth due to increased productivity. According to him the production, productivity and the area of black pepper and turmeric showed positive and significant growth during the study period. Production and productivity of black pepper is more stable than other spices.

The export of turmeric, chillies, coriander and cumin were found to be increasing both in terms of value and quantity. Even though the volume of export of pepper had declined, export earnings were found to be increasing. Exports of major spices were not stable

and export shares to major destinations of spices export were found to be declining.

Angels S et al (2011) in their article ' Impact of Globalisation on Production and Export of Turmeric in India- an Economic Analysis' examined the production and export performance of Indian turmeric for the period from 1974- 75 to 2007-08. They analysed the growth rate of area, production, productivity and export of turmeric using Compound Growth Rate (CAGR) analysis, the instability related with turmeric such as area of cultivation, yield, production, market price, export value and quantity using Standard Deviation (SD) and changes in the direction of trade by using Markov Chain Approach.

They found that there was a significant growth in production and export of turmeric during the study period and has high instability in production, export and domestic and international market prices. They also found that the export share retention for Indian turmeric during the study period has been high in minor importing countries (87 percentage) followed by UAE (49 percentage) Iran (41 percentage) and UK (35 percentage). The countries such as USA and Japan have not been the stable importers of Indian Turmeric.

Indian Institute of Foreign Trade (2011) in the research paper of Ministry of Agriculture, Government of India 'Analysis of Export of Spices from India to Middle East (Gulf cooperation council)', analysed the spice trade with Middle East. The primary objective of the study was detailed analysis of the current situation, changing market trend, and future outlook in the spice trade with the Middle East.

The report stated that, out of the 109 spices listed by the ISO, India produces as many as 75 in its various agro climatic regions.

Spices exports have registered substantial growth during the previous decade, registering an Annual Average Growth Rate (AAGR) of 13percent in value and 9 percent in volume. India commands a favourable condition in the world spice trade with 48 percent share in volume and 44 percent in value. Spices are exported to more than 150 countries. Even though export constitute nearly some 10- 12 percent of estimated annual production of spices with 4 million tonnes (2009 – 10) there is high demand for spices in domestic market. Spices are grown in some 2.5 million hectors in million of tiny holdings in the country and efforts would be needed to foster this potential growth sector of the country.

This paper analysed the export performance of major Indian spices to Middle East from 2006 to 2009 with the help of UN Comtrade six digit HS classified data using Compound Annual Growth Rate (CAGR) and Revealed Comparative Advantage (RCA). The study found that the spices in which India has been growing at a much greater than the world are nutmeg and cinnamon. RCA for commodities like pepper (not dried/ grounded) cinnamons, cloves, turmeric, saffron and curry have been showing an increasing trend, while spices like dried pepper, cardamom, cumin seeds coriander seeds and caraway seeds have decreasing RCA values.

S. Krishnan (2012) in his PhD thesis 'Impact of WTO on Spice-Sector in India – An Econometric Analysis' examined the impact of WTO on Indian spices with the specific objectives of examining the trend in area, production, productivity of spices, to examine the direction and magnitude of export of spices since reforms, to identify the major determinants of spices production and trade and assess the impact of reforms and spice industry since globalisation. He used single Kink and Two Kink model for the analysis.

He found that even though India exports only 10 percentage of our total production, it contributes almost 50 percentage of the rest of world's requirement. In totality there had been an upward trend as regards to area, production and productivity of spices. During the WTO regime the major barrier for export of spices and spice products as of now is SPS compliance. There are also some non- technical barriers for trade.

Sudheer. S.P (2012) in his PhD thesis 'Impact of Globalisation on the Spices Economy of Kerala with Special Reference to Pepper' examined the impact of globalisation and WTO agreements on the spices economy of Kerala with special reference to pepper.

He also analysed the problem faced by pepper cultivators and exporters as a result of globalisation. He used compound growth rate, correlation, regression, instability index, benefit- cost Ratio and RCA for analysis. He found that globalisation process and the establishment of WTO have influenced spices trade in many ways. Even though the state has good prospects for spices industry, existing productivity of major spices and their domestic prices are the challenges to our exports.

Satya Sandaram (2012) in an article 'Spices: Boosting Exports' examined the recent trend in spices exports. According to him India's natural advantage of diverse climatic condition helps the cultivation of wide range of spices in different regions. In recent years, spice export has been showing an encouraging trend. But even though the production was satisfactory, the trade was hurt by weak export demand during 2011- 12. So it is now time to move up the value chain to command a higher share of the export market. He hopes that recent steps of Spices Board to focus on organic crop cultivation in the coming years and the establishment of a chain of

Spices Banks across the country are expected to boost our spices exports.

Srinivasa Rao (2012) in his article 'Indian Spices Export: Their Growth and Instability' analysed the growth and instability of Indian spices export from 1960 to 2010. The major objectives of the study were to discuss the trends in growth and instability of Indian spices exports both by volume and value during the period (1960-2010) and identifies the future growth prospects and challenges of Indian spice trade.

The analysis was mainly by using the Compound Annual Growth Rate (CAGR) and Coefficient of Variation (CV). He found that during the fifty years of the study period, total spices exports grew at an Annual Compound Growth Rate of 12.83 percentages in terms of value and 5.01 percentages in terms of volume. The growth rate of total spices export during the post reform period are much higher in value (16.42 percentages) and volume (7.61 percentages). The instability is higher in export value than export volume. He concluded that, India is expected to emerge as the global processing hub of spices in the coming years.

Mary.PU (2012) in her PhD thesis 'Role of Spices Board in the Cultivation and Export of Spices: A Study with Special Reference to Kerala', studied the role of Spices Board in the cultivation and export spices in Kerala with the specific objectives such as, the role played by the Spices Board in the development of the two segments of spices sector such as cultivation and exporting, the problems faced by growers in cultivation and exporting, the problems faced by growers in cultivation and marketing of spices etc. The study was conducted using some statistical software. The researcher found that most of the schemes for the cultivators are underutilized by them due to

technical reasons, lack of time by information lack of initial founds etc. But the schemes for the export promotion have been utilized by exporters to a remarkable extent.

Sajith Mohan et al (2013) in their article 'Marketing of Indian Spices as a Challenge in India', analysed the marketing challenges of Indian spices taking the recent years data (from 2008-09 to 2011-12) for studying the problem. They used both primary and secondary data and also simple statistical tools like averages, percentages and graphical presentations. They found that Indian spices export basket consists of around fifty spices in whole form and more than eighty products in value added form constitute a major segment of the country's total exports earnings. According to them the important marketing challenges that Indian spices are faced are- low productivity, poor product quality, in sufficiency of legal provision, in adequate surplus for exports and insufficient quantities of quality spices.

Spices Board of India (2013) in its report 'Review of Export Performance of Spices during 2012- 13' stated that despite of decline in total export in the country, Indian spices exports have been able to record strident gain in both volume and value in rupee terms. Spices Board stated that it is the first time in the history of spices exports, that growth in volume registered an all time growth of 22 percent. Spices exports have registered substantial growth during the last five years registering an annual average growth rate of 20 percent in value and 10 percent in value and India commands a formidable position in the world spice Trade. During 2012- 13 a total of about 699170 tonnes of spices and spice products valued ₹ 11171. 6 cores (US $ 2040.18 million) have been exported from the country against 575270 tonnes valued ₹ 9783. 42 crores (US $ 2037. 76 million) in 2011-12.

Business Standard (2013) in a report titled 'Syrian Crisis Spices up, Jeera Exports from India' stated that as per the Spices Board of India data, this year jeera (cumin seed) exports have touched nearly 80000 tonnes till second week of December 2013 and more exports are likely to take place in days to come. The report stated that, Syrian Crisis coupled with dismal crop condition in other jeera (cumin Seed) producing national has created an advantageous situation for jeera export of India.

2.2.2 Empirical Literature Related with Export Performance of other Products in the New World Trade Scenario

Narinder Kaur(1996) in the abstract of doctoral thesis published as an article, titled, 'India's Exports-An Analysis of Instability and Performance' analysed India's export trend from 1970- 71 to 1992- 93. She found that there was an increase in imports by about 29 times while exports increased only about 24 times. The study has been undertaken to assess the performances and instability of India's aggregate exports. The Gini Coefficient of Concentration has been used to measure commodity concentration and geographic concentration. In order to measure the export performance of the country, compound growth rate and trend growth rate had been used. Commodity wise and country wise instability index have been worked out with the help of linear and exponential trend lines and with the help of Ordinary Least Square (OLS) method.

This study found that India's relative share in world exports has declined during the study period. Traditional commodities such as spices, tea, cotton fabrics etc. recorded a decline in the share during this period. There was also a change in composition of

comparative exported and direction of trade during the period of study.

Economic Survey of India (2002) stated that during 2001- 02 India faced another setback in its exports at large due to the semi recession faced by the US, one of the biggest trading partners of India. The terrorist attack on the World Trade Centre in the year 2001 caused a net loss of 0.25 percent of US GDP and also had an impact on India's exports, which grew only at 5 percent in that year.

Nisha Varghese (2004) in her PhD thesis entitled 'Export of Groundnut from Under Liberalisation Regime- An Economic Analysis' has given the result of the study conducted in the export potential and direction of Indian ground nut export using Markov chain analysis. She found that India's ground nut exports are likely to be concentrated in Malaysia and Indonesia. She has also studied the composition, direction and the size of exports in addition to sanitary and phytosanitary measures taken by different countries.

Pramod Kumar et al (2005) in their research paper 'Horticultural Export during the Post WTO Regime: A Commodity wise Analysis' examined the changing comparative advantage, composition and direction of trade in horticultural commodities during the "WTO regime. The study was carried out by using HS 8 digit classification of the commodities for a period from 1992 to 2002. The study used two analytical tools in order to analyse the performance of horticultural exports such as Elasticity of Value (EV) with respect to quantity and Revealed Comparative Advantage (RCA). They found that, the export of a large number of horticultural commodities, both primary and processed; have shown increase in the WTO period. But RCA of large number of horticultural

commodities are less than one revealing that the country does not possess comparative advantage in these commodities.

Amita Batra et al (2005) in their ICRIER working paper titled 'Revealed Comparative Advantage Analysis for India and China' conducted a systematic evaluation of the similarities of the pattern of Revealed Comparative Advantage (RCA) for India and China on the global market. They also tried to find out the leading manufacturing industries in terms of their RCA in India and China for a period of 2000- 2003. In order to study the similarities in the pattern of RCA they used Spearman's Rank Correlation Coefficient for India and China during the period. They found that there exist some broad similarities in the structure of comparative advantage for India and China. During the study period both countries enjoyed comparative advantage for labour and resource intensive sector in the global market.

Promad Kumar et al (2006) in their article 'Performance of Onion Export from India: A Temporal Analysis' examined the changes in composition and direction of onion exports and estimated the export demand for onion. They used 8 digit HS (ITC) classifications to include all the commodity groups of onion and its products in the study. Five yearly interval data for the period 1982-2004 are used to analyse the market shares for the onion exports. Triennium averages are taken as it minimizes the effect of weather and other factors as the export of onion. Changing direction are studied by using Markov Chain.

NaliniRajan Kumar et al (2007) in their article "Performance, Competitiveness and Determinants of Tomato Export from India' analysed the performance and competitiveness of export of tomato and tomato product from India with the objectives of finding out

impact of trade liberalization on tomato export, export performance, production, changes in the destination of Indian tomato and tomato products and the factors determining the tomato export. They used Revealed comparative advantage technique, Annual compound growth rate, Coefficient of variations and Ordinary Least Square (OLS) methods for the study. They found that the growth rates for the export of tomato and its products were found significant for both pre- WTO and post WTO period, but in post WTO period there exists high instability in export of tomato and its product.

Buranghe et al (2008) in their working paper 'India's Revealed Comparative Advantage in Merchandise Trade' analysed the RCA of Indian merchandise trade during the liberalized period (1996- 2005) using Balassa's RCA index. According to them as a country move towards development, its comparative advantage is expected to shift. They found that at the aggregate level India enjoyed comparative advantage in the export of nine out of the total twenty one sections in 1996. By 1998, the number of sections had declined to seven, but in the later years it went up to ten. They also found that at the more disaggregated level of 6 digits, out of the total 5130 products, the number of items where India has comparative advantage, increased from 1172 in 1996 to 1421 in 2005.

Prema Chandra. A (2008) in his article 'Export Performance in the Reform Era: Has India Regained the Lost Ground' analysed the export performance of India in the liberalised period. He used RCA for analysing the export performance. He found that developing Asia's share in total world manufacturing exports has increased from 19.5 percent in 1979-80 to 36.6 percent in 2005-06. But India still account for a small share around 1 percent at the end of the period. He found that during 1980- 81 there were only 37 commodities having a revealed comparative advantage greater than one. It

increased to 47 in 1990-91 and 61 during 2004-05. The RCA of total spices declined to 9.93 (2004-05) form 14.96 (1990-91) and 21.72 (1980-81). But spices are still enjoying a comparative advantage in world market.

Naseem Aktar et al (2008) in their article 'Changing Revealed Comparative Advantage: A Case Study of Footwear Industry of Pakistan' analysed the comparative advantage of the footwear industry in Pakistan and compared it with India and China in the global perspective. The study shows that as a result of reduction in trade barriers and technological advancements, global export patterns are changing fast. It led to an increase in productivity and change in comparative advantage patterns in world economies. Asian economies such as India and China are enjoying a notable growth in changing circumstances across world. The study was based an UN comrade data of 6 digit HS classification and Balassa's Revealed Comparative Advantage index. They found that during the period of 2003-06 Pakistan foot wear industry has moved disadvantage position to comparative advantage.

Shinoj and Mathur (2008) in a research article titled 'Comparative Advantage of India in Agricultural Exports vis-avis Asia: A Post Reform Analysis', examined the changes in comparative advantage status of India's major agricultural exports in comparison with the other Asian Exporters during the post reform period (1991-2004) using the Balassa's Revealed Comparative Advantage (RCA) analysis.

According to them the demand and supply situations in the Asian continent have undergone a rapid transformation due to the growth of world economy and lowering of trade barriers. This tremendous change is due to the establishment of WTO, the

formation of regional trading blocs like South Asia Free Trade Agreement (SAFTA), AEAN Free Trade Area (AFTA), Bangkok Agreement, emergence of new powers like Turkey and Vietnam with substantial in agricultural trade etc.

This study found that during the post reform period, exports of various agricultural commodities from India have responded differently in terms of comparative advantage. The analysis shows that there was a decline in RSCA estimates corresponding to India's exports from 0.47 in 1991 to 0.26 in 2004.

Shanmughan J. (2009) in a research paper titled 'Over All Performance of Tea in India: A Micro Study' examined the overall performance of tea in India from 1991 to 2005. The intention of the study was to analyse the specific performance of tea- both production and export- in the study area. The study was by using the statistical tools like demand forest, trend analysis, coefficient of variation and compound growth rate. This study exhibited that during the study period there existed wide variations in the export performance of different regions, i.e. export of tea from North India has steadily increased and from South India it has been declined.

Foreign Trade Policy 2009-14 (2009) examined the trade performance of India during the previous five year period. As per the policy report, India's export witnessed robust growth to reach a level of US $ 168 billion in 2008-09 from US $63 billion in 2003-04. As per WTO estimate the country's share of global merchandise trade was 0.83 percent in 2003; it rose to 1.45 percent during 2008 .It is estimated that nearly 14 million jobs were created directly or indirectly as a result of increase in exports during the five year period. The policy report says that weaker demand in developed economics, triggered by falling asset prices and increased economic

uncertainty has pulled down the growth of India's exports to developed countries. To overcome this, the policy focused on diversification of Indian exports to other markets, especially those located in Latin America, Africa, Asia and Oceania is needed.

T.P. Bhat (2011) in an article 'Structural Changes in India's Foreign Trade' has analysed the structural changes in India's Foreign trade form 1970- 71 to 2010- 11. According to him, over the last four decades, India's foreign trade has undergone a complete transformation in terms of composition of commodities. He analysed the economic growth and policy frame work, trade liberalization, relationship between economic growth and export growth, relationship between trade and employment and stability of India's comparative advantage using RCA. He found that there has been little change in India's merchandise exports structure till 1995-96, but some significant changes have occurred in the later years. According to him, in a number of products India does hold a higher RCA value but her share in the world exports of these products are lower.

Sandeep Das (2012), in a research study titled 'Agricultural Products Exports in India' analysed the agricultural products exports in India. According to him, India is the world's biggest producer of coconuts, mangoes, bananas, milk and dairy products, cashew nuts, pulses, ginger, turmeric and black pepper. According to him spices exports have registered a substantial growth during the last five years registering an annual growth rate of 21 percent in value and 8 percent in volume. Most of the spices exports include pepper, cardamom, chilli, ginger, tamarind, coriander, cumin seed etc. He suggested that in order to boost agricultural exports further, it is essential to practice good agriculture standard for ensuring that

Indian food products are accepted by consumers across the super market in Europe; USA and other developing countries.

Shawek Mukherjee and Shahana Mukherjee (2012) in their working paper 'Over view of India's Export Performance: Trade and Drivers' analysed India's export performance and changes in its composition over time. They identified India's main export commodities and investigated the relevance and competitiveness of these commodities in major export markets. The study was conducted by using CAGR and RCA analysis. They found that India's export performance and economic growth are inter linked.

Andrea Beltramello et al (2012) in their working paper 'The Export Performance of Countries within Global Value Chain (GVCS) pointed out that general observation emerging from aggregate export figures is that during the past decades, the international competitiveness of developed countries has gradually been eroded to the advantage of emerging countries. This paper has shown that although the academic debates are still going on how to define the competitiveness of countries, the economic and political discourse typically assesses international competitiveness based on export market shares. Since country's export bundle incorporate imports of intermediate goods representing a large part of its value, simply looking at the evolution of exports at the industry or even products level may misrepresent the international competitive position of a country. Hence, the process of globalization increasingly challenges this simple measurement of competitiveness by export shares and calls for a more qualified ie disaggregated level analysis.

Sunny Thomas and Waheeda Sheikh (2012) in their study "Growth and Composition of Indian Agricultural Exports during Reform Era' examined the performance of growth, structure and

composition of agricultural export of India, taking UN comrade two digit its classification data from 1991-92 to 2009-10. For the analysis of data they used Compound Annual Growth Rate (CAGR) percentage share and average values. They found that even though, there is an increase in the absolute quantity of agricultural exports, there is consistent decline in the percentage share of primary product in total export from 17.9 percent to 10 percent during the study period. There is considerable increase in the agricultural export since the onset of globalization and liberalization. The ratio of Indian agricultural export to that of non agricultural export has increased during the study period.

Varsha Dadhich and Dr.Rajkumar (2013) in their study on 'Growth and Performance of India's Agricultural Export' found that during the post reform period (1991- 2012), even though there is an increase in the absolute quantity of agricultural exports, there is consistent decline in the percentage share of primary products in total exports from 17.9 percent to 10.5 percent. The ratio of agricultural exports to that on non- agricultural export has increased during the period. They suggested that government has to take some effective steps to increase its agriculture exports in the coming years.

From the literature reviewed above, it is clear that even though large number of studies have been conducted in the various aspects of spices and spice products in the aggregate level and disaggregate level, no comprehensive study has been conducted so far covering the export performance of India's major spices in the WTO period. Some of the studies are at the aggregate level taking all spices together, and some others are related with the export performance of individual spices. This study considered export performance of major spices taking all aspects of spices exports such as growth, trend in growth, instability in growth, change in the directions and

compositions, performance of spices exports using revealed comparative advantage, and elasticity of value with respect to quantity to find out prospects of earning foreign exchange. The study also compared the export performance of spices exports during the WTO period with pre-WTO period. So the study 'Export Performance of Indian Spices in the WTO Regime: A Disaggregated Analysis' is a peculiar study and it is relevant in this context.

Chapter III
INDIAN SPICES AND THEIR EXPORTS – AN OVERVIEW

3.1 Spices and Spices Products

A Spice is a dried fruit, root, seed, bark, or vegetative material used in nutritionally insignificant as a food supplement for the reason of flavouring. It is defined as "a strongly flavoured or aromatic substance of a vegetable origin, obtained from tropical plants commonly used as a condiment". They are also used in cosmetics, pharmaceuticals, toiletries, aroma therapy, and fragrances. In food they add or modify flavours, whether sweet, biter, sour, 'hot' or otherwise. They also bring distinctive colour to certain food. Spices are widely used in ready to eat meals, sea food, in soups, sauces, packaged meat and in myriad other ways.

Spices differ from herbs. Herbs are the subset of spices. They are plants or leafy green plants used for flavouring or garnishing. But in ISO definitions no distinction is made between spices and herbs. Encyclopaedia Britannica defined spices and herbs as “Spices and Herbs are flavourful parts of plants used in cooking and beverage production to season food and drink. Spices such as cinnamon, cloves, and ginger originated in tropical or sub tropical regions; herbs such as rosemary, marjoram and thyme are native to the temperate zones: Spices seeds such as caraway, anise and fennel grow in tropical or temperate climate.”

India now produces more than 3.2 million tonnes of different categories of spices worth of around 4 billion US dollars. India exported above 0.7 million tonnes of spices worth of 2212.13 million US Dollars in 2012-13 and an estimated 0.817250 tonnes valued at

2267.67 Million US Dollars during 2013-14 (Spices Board). The country also account for around 48 percent of the export volume and 43 percent of export value (2013-14) of the world spice trade.

In India, different states are known for different spices. They are produced in all the states and union territories. Andhra Pradesh is known for ginger, turmeric, chilli and mustard, Gujarat for cumin, dill seeds, fenugreek, fennel, chilli and garlic. Himachal Pradesh for ginger, Haryana is known for garlic, Karnataka for pepper, cardamom (small), ginger, chilli, turmeric and garlic, Orissa for ginger, chilli, turmeric and garlic. Kerala is known for pepper, ginger, cardamom (small), turmeric, nutmeg and mace, clove, cambodge, vanilla, cinnamon and cassia. The majority of Indian species production is undertaken in very small holdings, often on hilly tracts of land. It is estimated that 2.5 to 3.0 million small holders cultivate one or more spices either for self consumption or for sale.

Table 3.1

Spices producing Areas in India with their varieties

Andhra Pradesh	Chilli, Ginger, Mustard, Turmeric
Arunachal Pradesh	Ginger, Tejpat, Turmeric
Assam	Aniseed, Turmeric
Bihar	Ajovan, Garlic, mustard, Turmeric
Gujarat	Chilli, Cumin, Dill seed, Fennel, Fenugreek, Garlic
Hariyana	Garlic
Himachal Pradesh	Ginger
Jammu and Kashmir	Ajwan, saffron
Karnataka	Cardamom (small), Chilli, clove, Garlic, Ginger, kokum, Nutmeg and mace, pepper, Turmeric, Vanilla

Kerala	Cardamom (small), Cinnamon and Cassia, clove, Ginger, Nutmeg &Mace, Pepper, Turmeric, Vanilla and Cambodge.
Madhya Pradesh	Chilli, Garlic, Ginger
Maharashtra	Chilli, Garlic, Pomegranate seed, Turmeric
Meghalaya7	Ginger, Turmeric
Mizoram	Ginger
Orissa	Chilli, Garlic, Ginger, Turmeric
Punjab	Aniseed, celery
Rajasthan	Chilli, Cumin, Coriander, Dill seed fennel, Fenugreek, Garlic
Sikkim	Cardamom (large), Ginger, Tejpat
TamilNadu	Cardamom (s), Chilli, Cinnamon & Cassia, Clove, Ginger, Herbal and Exotic spices, Nut meg and Mace, Pepper, Pomegranate seed, Turmeric, Vanilla
Tripura	Turmeric
Utter Pradesh	Aniseed, celery, Chilli, Coriander, Cumin, Fenugreek, Garlic, Mustard, Turmeric
West Bengal	Cardamom (L), Chilli, Ginger, Turmeric

Source: Spices Board, Cochin

3.2 Spices Exports

Spices are traded all over the world indifferent forms such as dried bulk (whole); in powder; and as oil, oleoresins, natural colours and extracts. The available world trade statistics for spices provides only the approximate indication of actual trade. This is not only because of the trade consist of a large number of individual commodities-sold in different forms and sometimes classified differently-but also spice trade is an area in which there is an

extensive amount of transhipment and re-exports. Most widely traded spices are grown under tropical/subtropical conditions.

The demand for spices, herbs and essential oils from the world are continuously expanding. The changes in the food habits of the people due to affluence and modern complexities of life ,the desire for new flavours, food diversification, increased importance of processed foods and increasing importance of 'ethnic' foods requires various types of spices, spice products and aromatic herbs for its preparations. Developing countries have a significant opportunity to benefit from this increasing demand. They are producing and exporting a large variety of spices and its products which are produced in tropical and non-tropical environments. Spices and spices products would be profitable sources of diversification for small farmers in less developed countries.

3.2.1. Major Spice Crops in World Trade

In terms of the value of world trade, pepper, cardamom, ginger, turmeric, capsicum/chilli, cinnamon nutmeg/mace, cloves, all spices/ pimento and vanilla are the most important spices crops from tropical regions and cumin, coriander, sesame seeds, mustard, sage, bay, oregano thyme and mint are the spices crops from the non tropical regions.

Table 3.2

World's Export of Major Spices(1988-2000)
(Weights in Kg value in US Dollars)

Commodities & HS Code	1988	1990	1994	1995	2000
Pepper 090411	Q: 37646523 V: 119550879	Q: 179588453 V: 297158655	Q: 185858085 V: 398403296	Q: 187618888 V: 499049312	Q: 255831116 V: 950656073
Cardamom 090830	Q: 1334611 V: 8765126	Q: 538187 V: 20745895	Q: 18764107 V: 62548575	Q: 19264336 V: 61129628	Q: 22906880 V: 132024832
Chilli/ Capsicum 090420	Q: 10146113 V: 18819659	Q: 61991746 V: 91720509	Q: 163025633 V: 203314816	Q: 180028904 V: 312854757	Q: 225927032 V: 292334943
Ginger 091010	Q: 6830413 V: 7298017	Q: 70841446 V: 30016616	Q: 147838645 V: 84369952	Q: 195302967 V: 121498146	Q: 227386730 V: 122302233
Turmeric 91030	Q: 19091335 V: 13502809	Q: 17452713 V: 11597554	Q: 346440591 V: 20652346	Q: 33466816 V: 20653058	Q: 45191040 V: 29616438
Coriander 90920	Q: 12266699 V: 6254252	Q: 11309180 V: 6151351	Q: 33889310 V: 18797518	Q: 37175306 V: 23469851	Q: 80486864 V: 32004636
Cumin 90930	Q: 1237617 V: 2775752	Q: 16020865 V: 15928997	Q: 19149160 V: 27639350	Q: 19402084 V: 25627720	Q: 36570351 V: 60340112
Nutmeg 90810	Q: 230025 V: 1519890	Q: 13862631 V: 31983879	Q: 16346607 V: 26475980	Q: 16918338 V: 30786894	Q: 22084194 V: 109190205
Mace 90820	Q: 38144 V: 4930195	Q: 2786866 V: 9029255	Q: 2290686 V: 6038181	Q: 3214404 V: 10982924	Q: 2988147 V: 19875949
Curvy 91050	Q: 321232 V: 986645	Q: 1650095 V: 4628509	Q: 5112989 V: 14132557	Q: 5490655 V: 15640578	Q: 8368687 V: 202522279
Spices Nes 91099	Q: 8972303 V: 9599821	Q: 19035447 V: 186186	Q: 46541471 V: 93338381	Q: 57049621 V: 103839521	Q: 86055055 V: 133239164

Note: Q : Quantity, V: Value
Spices Nes.include Fenugreek, Tamarind, Mint products, etc.
Cardamom includes Cardamom small and large.
Source: Calculated from UN COMTRADE Statistics, DGCI&S, Calcutta, 2014

Table 3.3

World's Export of Major Spices (2005-12)(Weights in Kgs , value in US Dollars)

Commodities & HS Code	2005	2010	2011	2012
Pepper 090411	Q: 238571537 V: 422896471	Q: 286516091 V:1063709861	Q: 275004232 V:1598609900	Q:290479260 V:1878327173
Cardamom 090830	Q: 42701859 V: 101765486	Q: 40831659 V:441937094	Q: 41556267 V:434299176	Q:6222407 V: 69485003
Chilli/Capsicum 090420	Q: 407115244 V: 590549363	Q: 374253759 V:971442329	Q: 931491962 V:1305306568	Q:383079319 V: 547846914
Ginger 091010	Q: 316176859 V: 299734137	Q: 452448277 V:650808184	Q: 551439391 V:658710591	Q:55468380 V: 151031832
Turmeric 091030	Q: 64646480 V: 50922289	Q: 142303152 V:196926972	Q: 108047002 V:238405788	Q:108961429 V: 142199718
Coriander 090920	Q: 92571212 V:51646068	Q: 11076869 V:154275610	Q: 117631560 V:137269596	Q:65569002 V: 53348290
Cumin 90930	Q: 92120907 V: 105208186	Q: 80924038 V:207143494	Q: 7870173 V:233009544	Q:112298287 V: 288104412
Nutmeg 090810	Q: 18533439 V: 81150285	Q: 19715390 V:128741893	Q: 22934395 V:243155973	Q:4760067 V: 49429721
Mace 090820	Q:9519203 V: 38150469	Q: 4759808 V:52075109	Q: 4602163 V:68630863	Q:418257 V: 5383019
Curry 091050	Q: 9297951 V: 31198602	Q: 2917362* V: 4172886	NA	Q: 17876 V: 68440
Spices Nes. 091099	Q: 130294546 V: 230636235	Q: 128823625 V:430289952	Q: 211206734 V:523077614	Q:227492001 V: 523812138

Note: Q : Quantity, V: Value
Spices Nes include Fenugreek, Tamarind, Mint products, etc.
Cardamom includes Cardamom small and large.
* Only data up to 2008 is available
Source: Calculated from UN COMTRADE Statistics 2014, DGCI &Calcutta,2014

Table 3.4

World's Export of Other Spices-1988-2000 (Weight in Kg Values in US Dollar)

Commodities & HS Code	1988	1990	1995	2000
090412	Q: 988057 V:5156888	Q: 2601052 V:8665666	Q: 10866187 V:43245504	Q:15684753 V: 66539287
090500	Q: 897870 V:866566	Q: 1739781 V:90814443	Q: 2295343 V: 87236150 Q: 2315607 V: 54628095 1996	Q: 4426695 V: 119070023
090610	Q: 267753 V:102291	Q: 16754961 V:48575343	Q: 47890366 V:79425480	Q:71248767 V: 92171471
090620	Q: 79271 V:259711	Q: 13161578 V:23023566	Q:16300762 V:29912651 Q: 16864010 V: 30316308 1996	Q: 5158348 V: 9197986
Cloves 090700	Q: 117345 V: 4226776	Q:19782864 V: 40499666	Q:32529295 V: 26829260	Q:3223722400 V: 99041296
Aniseed 090910	Q:161443 V:416446	Q:4243902 V:6272057	Q:9879529 V:19590529	Q:10696735 V:23061924
Caraway Seed 090940	Q:146773 V:227051	Q:1163574 V:1173035 Q:14937392 V: 21293910 (1994)	Q:8802705 V:14683740	Q:11381017 V:10548253
Fennel Seed/Jumber berries 090950	Q:1796025 V:2869735	Q:3734936 V:4815206	Q:16802837 V:17322885	Q:19238806 V:21215036
Saffron 091020	Q:102389 V:5593312	Q:266086 V:25522847	Q:661280 V:22491035	Q:19238806 V:2215036
Thyme and Bay leaves 091040	Q:1150613 V:811967	Q:9176582 V:15432785	Q: 14242123 V:32058976	Q:21205080 V:39182562
Mixtures of Spices 091091	Q:4534793 V:12875345	Q:5617319 V:1692449	Q: 16982105 V:59001623	Q: 27213025 V: 73208990

Note: Data for some years are not available
Sources: UN Comtrade and DGCI &S, Calcutta, 2014

Table 3.5

World's Export of other Spices 2005-12
(Weight in Kg Values in US Dollar)

Commodities & HS Code	2005	2010	2011	2012
Pepper crushed or ground 090412	Q: 3892797 V:101584513	Q: 2601052 V:8665666	Q: 56688178 V:355203613	Q: 59328844 V: 403496983
Vanilla Beans 090500	Q: 4020641 V: 111251707	Q: 4710931 V:87543480	Q:6697856 V: 112982202	Q: 398888 V: 5199517
Cinnamon white(090610)	Q: 97485830 V: 122303770	Q: 27721738 V: 25677612 (2008)		Q: 8728 V: 20561
Cinnamon crushed original 090620	Q: 9174246 V: 16921097	Q: 26987991 V: 50323610	Q:28634646 V: 68455867	Q: 32983649 V: 81307929
Clove 090700	Q:42752799 V:116765915	Q: 39509021 V:150654833	Q: 67802881 V: 726854217	Q: 98618882 V: 62018747
Ani Seed 090910	Q:20143823 V:30226776	Q:15402899 V:72662152	Q:12907688 V:59368278	Q:1214192 V:2679030
Caraway seed 090940	Q: 9453216 V:12590025	Q:13387081 V: 32711292	Q: 15662785 V:35387008	Q:3009488 V:7133264
Fennel Seed/Jumper berries 090950	Q: 20079788 V:26732846	Q: 286412u87 V:58201166	Q: 29390176 V: 66680593	Q:23146230 V: 31673072
Saffrom 091020	Q:798508 V: 26732846	Q: 1437933 V: 408143762	Q: 868061 V: 373355384	Q:1045067 V: 73516589
Thyme and bay leaves 091040	Q: 28765266 V:59434435	Q:4109542 V:7496679(2008)		Q:2642175 V: 6013892
Mixtures of Spices 091091	Q: 37077697 V: 140699177	Q: 510211210 V: 252914876	Q: 70309414 V:316751214	Q: 77139938 V: 343763216

Sources: UN Comrade and DGCI &S, Calcutta, 2014

Table 3.6

Aggregate Merchandise Exports of India and World

(Value in Million US Dollars)

Years	Value of Merchandise Export	
	India	World
1988	13325.0	2869000
1989	15846.0	3098000
1990	17969.0	3449000
1991	17727.0	3516000
1992	19628.0	3767000
1993	21572.0	3783000
1994	25022.0	4327000
1995	30630.0	5166000
1996	33105.0	5404000
1997	35008.0	5593000
1998	33437.0	5503000
1999	35667.0	5714000
2000	42379.0	6459000
2001	43361.0	6195000
2002	49250.0	6495000
2003	58962.0	7589000
2004	76648.6	9222000
2005	99616.0	10508000
2006	121807.7	12130000
2007	150158.6	14023000
2008	194828.3	16160000
2009	164908.7	12554000
2010	226351.0	15300000
2011	302905.0	18328000
2012	296808.0	18404000
2013	313235.0	18816000

Source: WTO Statistics 2014.

3.2.2. Major Spices in India's trade

India is the largest producer, consumer and exporter of spices with a 48percent share by volume and 43 percent of share by value in the World market. Indian spices exports basket consists of around 50 spices in whole form and more than 80 products in value added form. However, a few spices and the value added spices constitute a major segment of the country's total export earnings from spices and only 22 spices are grown in India on a commercial basis.

Spices export has shown encouraging trends in recent years. During the last decade the annual growth rate of total spices is around 10 percent in value terms. Spices export from India during 2010-11 were 525750 tonnes valued at ₹ 68407.1 million (US $1502.85 million). Spices export from India during 2011-12 was impressive both in terms of quantity (575270 tonnes) and value (₹ 97,8342.48 million/US$2037.76 million). India recorded an increase of 22 percent in the export of spices and spice products during 2012-13. During 2012-13 total spice export of India was 726613 tonnes against 575270 tonnes in previous financial year. In value terms, the increase was 14%, i.e. from ₹9783.45 crores (2011-12) to ₹ 12112.76 crores (2012-13).compared to The achievement is 28.37 percent higher in volume and 47.72 percent higher in value terms than the target fixed by the Spices Board in the beginning of financial year 2013. The Board's target was to export 566000 tonnes of spices valued at ₹ 8200 crores. According to the Spices Board Sources during the year 2013-14, a total of 817250 tons of spices and spice products valued ₹ 13735.39 crores (US Dollar 2267.67 Million) has been exported from the country. This is 12 percent higher in volume and 13 percent in rupee term and 3 percent in dollar term than the previous year.

Considering the export value of spices during 1995-96 (the year in which WTO came into being) and 2012-13, the most important items of Indian spices and spices products are pepper, chilli, coriander, cardamom (small), ginger, cumin, turmeric, fenugreek, nutmeg and mace, tamarind, curry powders/mix, mint products and spice oil and oleoresins.

Table 3.7

Top Ten Spices and Spices Products during 1995-96 and 2012-13

(Percentage share of value)

Items	Share in 1995-96 (percentage)	Share in 2012-13 (percentage)
Pepper	24.4	5.27
Cardamom(S)	-	1.75
Chilli	24.29	19.65
Ginger	4.83	-
Turmeric	5.74	4.58
Coriander	2.79	1.67
Cumin	-	9.52
Fenugreek	2.32	-
Nutmeg/Mace	-	1.86
Tamarind	2.57	-
Mint products	5.9	32.53
Spice oil & oleoresin	14.3	12.87
Curry powder	2.18	2.27
Total	89.3%	91.97%

Sources: Calculated from Spice Statistics 2004 ,Statistical Division of Spices Board, Cochin (2014)

3.2.3. Export of Spices from India

India's spices export over the past 28 years (1985-86 to 2012-13) has witnessed a tremendous increase both in value and volume.

During this period export volumes have increased about mine fold, while export value has increased about 43 fold, in rupee terms.

Table 3.8

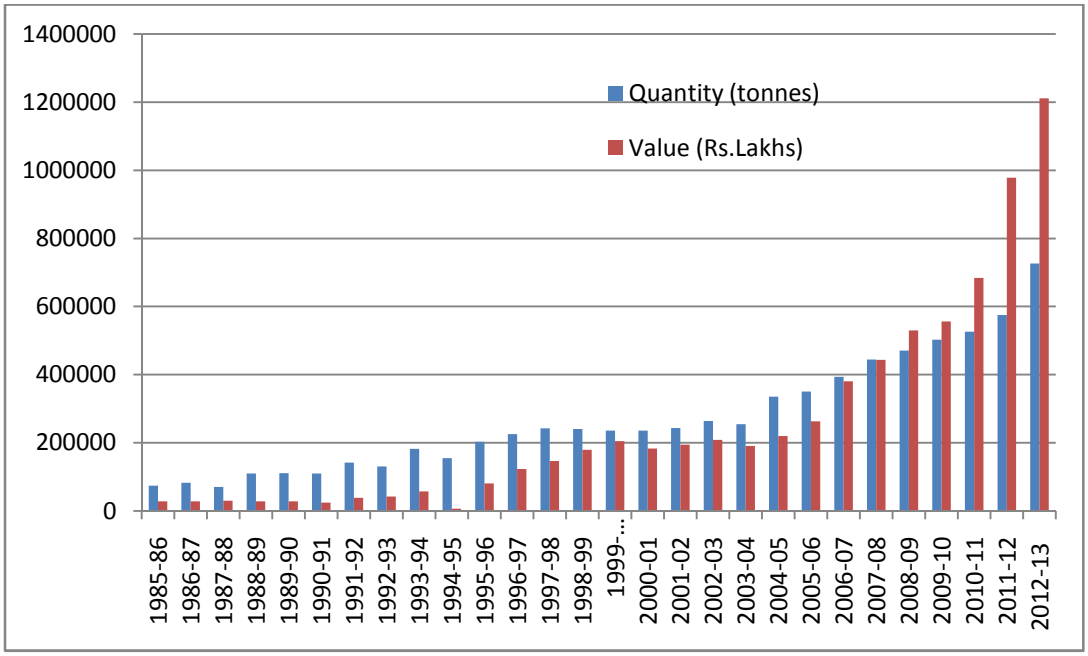
Export of Total Spices from India during the Period from 1985-86 to 2012-13

Years	Quantity (tonnes)	Value (Rs.Lakhs)
1985-86	74501	28252.08
1986-87	82827	28199.43
1987-88	70279	29808.03
1988-89	109616	28187.01
1989-90	110434	28254.01
1990-91	109636	24214.42
1991-92	142104	38096.76
1992-93	130734	41863.64
1993-94	182336	57144.01
1994-95	155008	62010.53
1995-96	203398	80443.01
1996-97	225295	123071.80
1997-98	242071	146681.60
1998-99	240862	179609.77
1999-2000	235611	204367.87
2000-01	235917	183352.91
2001-02	243203	194054.88
2002-03	264107	208671.02
2003-04	254382	191160.
2004-05	335488	220000.0
2005-06	350363	262762.2
2006-07	393692.6	380604.8
2007-08	444250	443550.00
2008-09	470520	530025.50
2009-10	502750	556050.00
2010-11	525750	684070.70
2011-12	575270	978342.48
2012-13	726613	1211275.80

Sources: Spice Statistics 2004, Spice Export Review 2007, Statistics Division, Spices Board Cochin,(2014)

Figure 3.1

Export of Spices from India (1985-86 to 2012-13)



Source: Table 3.8

Table 3.9

India's Aggregate Exports and Share of Spices Exports

(Value in Crores of Rupees)

Years	Aggregate Export	Spices Export	Share of Spice Export (percentage)
1985-86	10895	282.52	2.59
1986-87	12452	282.00	2.26
1987-88	15674	298.08	1.90
1988-89	20232	281.87	1.39
1989-90	27658	282.55	1.02
1990-91	32558	242.14	0.74
1991-92	44042	380.97	0.87
1992-93	53688	418.64	0.78
1993-94	69751	571.44	0.81
1994-95	82674	620.10	0.75

1995-96	106353	804.43	0.76
1996-97	118817	1230.72	1.04
1997-98	130101	1466.82	1.08
1998-99	139752	1796.10	1.29
1999-2000	159561	2043.68	1.28
2000-01	203571	1833.53	0.88
2001-02	209018	1940.55	0.93
2002-03	255137	2086.71	0.82
2003-04	293367	1911.60	0.65
2004-05	375340	2200.00	0.59
2005-06	456418	2627.62	0.58
2006-07	571779	3806.05	0.66
2007-08	655864	435.50	0.68
2008-09	840755	5300.25	0.63
2009-10	845534	5560.5	0.66
2010-11	1142922	6840.71	0.60
2011-12	1465959	9783.42	0.67
2012-13	1633419	12112.76	0.74

Source: Calculated from data obtained from Spice Statistics 2004
Statistical Division of Spices Board ,Cochin.
Reserve Bank of Indian Hand Book 2013-14.

From the table 3.9 it is clear that before 1990, the share of spices exports in the aggregate exports were greater than 1 percent. It declined to less than one percent up to 1996-97 and again it dropped down to below one percent after 2000.

Export of Major items of Spices

India today produces and exports a wide variety of spices and its products. According to the data available in the year 2012-13, about 85 percent of the export earnings of spices were contributed by pepper (5.27 percent), chilli (19.65 percent), turmeric (4.58 percent),

cumin (9.52 percent), mint products (32.53 percent), spice oils and oleoresins (12.87 percent)

Table 3.10

Item wise Export of Spices from India (Major Items)

(Quantity in tonnes and value in Rupees lakhs)

Items	1990-91	1995-96	2000-01	2010-11	2012-13
Pepper	Q: 9985	Q: 26244	Q:21830	Q:18850	Q:15363
	V: 10239.93	19629.84	V:38081.57	V:38318.5	V:63810.29
Cardamom (S)	Q:400	Q:527	Q:1545	Q:1175	Q:2372
	V: 1086.61	V: 1296.97	V:8468.02	V:13216.25	V:21215.04
Chilli	Q:24534	Q: 56165	Q:62448	Q:240000	Q:301000
	V: 21755.55	V: 3892.13	V:22973.3	V:153554.0	V:238060.9
Ginger	Q: 6555	Q: 18483	Q:21830	Q:18850	Q:22207
	V: 1175.79	V: 3892.13	V:2682.06	V:12131.25	V:18725.14
Turmeric	Q: 123624	Q: 27050	Q:44627	Q:49250	Q:88513
	V: 1548.48	V: 4620.33	V:11557.62	V:70285.15	V:55487.7
Coriander	Q: 3488	Q: 11541	Q:12480	Q:40500	Q:35902
	V: 405.45	V: 2243.34	V:3736.43	V:16663.25	V:20182.59
Cumin	Q: 1029	Q: 3871	Q:18891	Q:32500	Q:85602
	V: 304.95	V: 1739.32	V:187835.28	V:39597.75	V:15306.61
Fenugreek	Q: 3748	Q: 15138	Q:9353	Q:18500	Q:29622
	V: 304.56	V: 1867.2	V:1977.99	V:6548.1	V:10488.12
Nutmeg & Mace	NA	Q: 5	Q856	Q:2100	Q:3231
		V:569	V:1630.19	V:9776.8	V:22591.87
Tamarind	Q: 7715	Q: 16317	Q:10026	Q:17500	Q:17950
	V: 466.07	V: 2071.5	V:2248.6	V:169679	V:10753.15
Mint Products	NA	Q: 1352	Q: 4185	Q:17450	Q:20039
		V: 4750.12	V:15498.22	V:169679	V:394049.95
Spice oils & Oleoresin	Q: 892	Q: 1912	Q:3860	Q:7600	Q:9515
	V: 3198.74	V: 11501.77	V:39371.33	V:91062.5	V:155888.19
Curry Products	Q: 3144	Q: 4246	Q:5841	Q:15250	Q:17436
	V: 660.04	V: 1755.5	V:4299.56	V:21050.5	V:27515.66
Other spices	Q: 14522	Q: 20546	Q: 33037	Q:49325	Q:16293
	V: 2067	V: 5463	V: 15083	V:34189	V:18773.16
Total	Q: 109636	Q: 203398	Q:235917	Q:525750	Q:726613
	V: 24214	V: 80443	V:183353	V:684070	V:1211275.80

Note: NA: Data are not available, Q: Quantity V: Value.
Source: Spice Statistics, 2004,

Statistics Division Spices Board Cochin, 2014

The Table 3.10 reveals that, the export volume (quantity) from 1995-96 to 2012-13 had been increased by 257.24 percent and value by 1405.76 percent. But if one takes the individual items, one could see wide fluctuations in percentage variations within this period. Pepper showed negative growth in volume during the WTO period. The export of value added products were encouraging during this period.

Table 3.11

Export of India's major Spices from 1988 to 2012 (Calendar year Basis)

(Weights in Kilograms and Value in US Dollar)

Years	Pepper	Cardamom	Chilli (Capsicum)	Ginger	Turmeric
1988	Q:36132980	Q: 12140812	Q:7950071	Q:6367481	Q:18967508
	V:111711720	V: 84289928	V:11864040	V:6451054	V:13297337
1989	Q:33788876	Q: 889128	Q:11966853	Q:8134765	Q:16899708
	V: 93253816	V: 3839561	V:15847742	V:7780025	V:9945976
1990	Q:28851046	Q: 1477269	Q:24482688	Q:6554824	Q:13623608
	V: 55360988	V: 8691620	V:15149453	V:6479789	V:8533681
1991	Q:19652248	Q: 1453915	Q:32502018	Q:14258905	Q: 19661284
	V: 29395092	V: 8380316	V:136337624	V:8893097	V:8533681
1992	Q: 2258862	Q: 1425370	Q:15169451	Q: 9825006	Q:19726260
	V: 28854746	V: 5679351	V: 23446512	V: 6509343	V:18846490
1993	Q: 47636328	Q:2184170	Q:30483028	Q: 18441952	Q:25436262
	V: 5893744	V: 8645261	V: 22866444	V: 7900294	V:16756243
1994	Q: 36277312	Q: 1549806	Q:19979480	Q: 12022389	Q:2825590
	V: 74188800	V: 5017170	V: 18136648	V: 5328263	V:14388773
1995	Q: 24847556	Q: 2066002	Q:55863512	Q: 18482754	Q:27049786
	V: 56842760	V: 6237586	V: 58074800	V: 11600486	V:13770862
1996	Q: 4694462	Q: 1809663	Q:48735282	Q: 29737013	Q:23018801
	V:114950811	V: 5300402	V: 56064356	V: 16687855	V:16463050
1997	Q: 34876500	Q: 1921216	Q:41902848	Q:28308510	Q:26875020
	V:129709168	V: 5934347	V: 37417372	V: 19546870	V:21302152

1998	Q: 32531638	Q: 1981745	Q:42554884	Q: 8771761	Q:32421144
	V:143911968	V: 7374389	V: 37156188	V: 9720966	V:27818976
1999	Q:35112852	Q: 1890091	Q:58997679	Q:8854994	Q:35791212
	V:163281627	V: 10231777	V: 54092850	V: 7167022	V:27432861
2000	Q:18490538	Q: 2616879	Q:54794228	Q: 7010185	Q:39390162
	V:80380803	V: 19193908	V:43272637	V: 5596716	V:22496383
2001	Q: 18399256	Q: 2182048	Q:50522805	Q: 5896847	Q:27938626
	V: 44232381	V: 14084889	V: 42642740	V: 4864567	V:15954854
2002	Q:18576772	Q: 1903512	Q:84032920	Q: 9476388	Q:35054840
	V: 32322972	V: 10937389	V: 57152366	V:5295453	V:20728237
2003	Q: 11644897	Q: 1714179	Q:77279737	Q: 4316890	Q:34614979
	V: 23035969	V: 9986031	V: 61733586	V: 3840555	V:26074995
2004	Q: 9330820	Q: 1578951	Q:132513459	Q: 11023200	Q:39742086
	V: 18133131	V: 8025276	V: 97523720	V: 9049352	V:31937648
2005	Q: 12557579	Q: 1970633	Q:126590693	Q: 11988877	Q:50080145
	V: 23387174	V: 8051890	V: 90797204	V: 12514940	V:36578812
2006	Q: 22127698	Q: 1917350	Q:126022767	Q: 11094827	Q:54399934
	V:47285465	V: 7827192	V:132833590	V: 11196162	V:38045573
2007	Q: 36107036	Q: 2490317	Q:225928608	Q: 9689367	Q:38045573
	V: 98989139	V: 10600499	V: 276521914	V: 8951147	V:50213366
2008	Q: 28197343	Q: 2903846	Q:196669981	Q: 8307504	Q:59335291
	V: 85100137	V: 13953283	V: 237978404	V: 10520101	V:56507006
2009	Q: 19719784	Q: 3025295	Q:199503926	Q: 8342211	Q:5530151
	V: 49621864	V: 24463575	V: 250397396	V: 11498709	V:69987881
2010	Q: 19463903	Q: 3907718	Q:118540116	Q: 13554586	Q:107923577
	V: 55551477	V: 43621033	V: 34790927	V: 23876270	V:145325381
2011	Q: 28219338	Q: 6093090	Q:260485182	Q: 29747216	Q:94093371
	V:147168998	V: 79801712	V: 496068770	V: 55246230	V:194400039
2012	Q: 18871969	Q: 6017630	Q:369279333	Q: 32821932	Q:98706520
	V:95049853	V: 68031608	V: 532037360	V: 42918775	V:108950797

Sources: UN COMRADE Statistics 2014 and DGCI & S. Calcutta 2014

Table 3.12

Export of India's Major Spices and Spice Products from 1988 to 2012

(Weights in Kilograms and Value in US Dollars)

Years	Coriander	Cumin	Nutmeg	Mace	Curry	Spice Nes
1988	Q:8175250	Q: 1174271	Q:101	Q:3097	Q53929	Q:7738654
	V: 4052622	V:2597665	V: 826	V:22862	V:29450	V:6189910
1989	Q:2666730	Q: 4177979	Q:1000	Q:50	Q:70	Q:10125252
	V:1715753	V: 4185799	V:4930	V:828	V:413	V:6331672
1990	Q: 3488091	Q: 1000613	Q:3500	Q:61	Q:59638	Q:8711545
	V: 2234408	V: 1635813	V:7204	V:785	V:7136	V: 5300250
1991	Q:9953973	Q: 1607091	Q:296	Q:NA	Q: 14201	Q:13126515
	V: 5378975	V: 2502824	V:2776	V:NA	V:38968	V:7196135
1992	Q: 13737254	Q: 2566523	Q:2074	Q: NA	Q:18810	Q:11825577
	V: 811088	V: 5439867	V: 7678	V: NA	V:21609	V:7704422
1993	Q: 13551906	Q:3114434	Q:147	Q: 11250	Q:15193	Q:13916222
	V: 670640	V: 4975034	V: 245	V: 16423	V:31548	V:8399572
1994	Q: 10702320	Q: 5460988	Q:5020	Q: NA	Q:10944	Q:14733180
	V:5712997	V: 7590366	V: 18126	V:NA	V:19702	V:11083964
1995	Q: 11541102	Q: 3772871	Q:5843	Q: 40	Q:38970	Q:23852584
	V: 6686262	V: 5005518	V: 19747	V: 563	V:47817	V:12763815
1996	Q: 11808891	Q: 6247937	Q:3874	Q: 1398	Q:68577	Q:21541005
	V:811450	V: 9472703	V: 7943	V: 5031	V:61548	V:13949977
1997	Q: 19394436	Q: 15837833	Q:30406	Q:1000	Q:141806	Q:18922364
	V:14633807	V:2124120	V: 11839	V: 3497	V:97461	V:16818050
1998	Q: 16912464	Q: 7571541	Q:9750	Q:70	Q:308731	Q:25864636
	V: 8850328	V: 10168339	V: 37156188	V: 363	V:180605	V:20309096
1999	Q:13688797	Q: 5399237	Q:126503	Q:4050	Q:55461	Q:27860261
	V: 7048312	V: 7519451	V: 180355	V: 14643	V:60763	V:26480472
2000	Q:11715120	Q: 11977455	Q:768482	Q: 1210	Q:642717	Q:41697623
	V:7318988	V: 21605784	V:3016583	V: 2633	V:390951	V:35269003
2001	Q: 11909686	Q:15818160	Q:5974133	Q: 18246	Q:752288	Q:47677939
	V: 8205150	V: 30747644	V: 3023443	V: 111742	V:425566	V:42909023
2002	Q:14585126	Q: 11256011	Q:1529082	Q: 1505	Q:877052	Q:41662808
	V: 8638131	V: 17935190	V: 5683184	V:17918	V:492486	V:32883555
2003	Q: 14812959	Q: 6877903	Q:1204212	Q: 332297	Q:751434	Q:33816692

	V: 10867925	V: 9983238	V4555584	V: 89907	V:2374756	V:32273345
2004	Q: 3193194	Q: 11229026	Q:1286633	Q: 86620	Q:676456	Q:37501842
	V: 17624077	V:16683319	V: 4119150	V: 289429	V:2387851	V:28315439
2005	Q: 27948191	Q: 10660297	Q:1576402	Q: 46973	Q:844178	Q:47137824
	V: 16440031	V: 16652136	V: 6539372	V: 156251	V:2979899	V:35463409
2006	Q:24890055	Q: 31214017	Q:1570339	Q:91405	Q:1470878	Q:44387151
	V:18140610	V: 48937085	V:6275439	V: 257460	V:5192116	V:39256383
2007	Q: 29953488	Q: 32805367	Q:1658094	Q: 54257	Q:8593912	Q:55038152
	V: 26504500	V: 74997583	V: 7192037	V: 147892	V:8093089	V:55027399
2008	Q: 35872012	Q: 75041344	Q:1460090	Q: 30204	Q:2031343	Q:76336293
	V: 46309220	V:172539494	V:8112782	V: 164833	V:2067593	V:82881695
2009	Q: 19719784	Q: 43761868	Q:3314712	Q: 55705	NA	Q:75636865
	V: 49621864	V:93609230	V: 17582168	V:215241	NA	V:69814921
2010	Q: 28861601	Q: 42005366	Q:1733263	Q: 23559	NA	Q:25952362
	V: 34645580	V: 91151644	V: 12789036	V: 206299	NA	V:91005437
2011	Q: 32498072	Q: 47324690	Q:3091827	Q: 82186	NA	Q:106249954
	V:34010855	V:137164732	V: 35199715	V: 676285	NA	V:125430089
2012	Q: 43271001	Q: 90916817	Q:3377350	Q: 184186	NA	Q:118103089
	V:36227398	V:222732708	V: 35039870	V: 768584	NA	V:123316900

Note: NA: Data are not available

Sources: UN COMRADE Statistics2014, DGCI & S. Calcutta 2014

Table 3.13

Export of India's other Spices and Spices products from 1988 to 2012

(Values in US Dollar)

Year	Pepper crushed ground	Vanilla	Cinnamon Whole	Cinnamon crushed or ground	Cloves
1988	166383	NA	96468	705	3341
1989	182385	3334	345293	1455	393926
1990	61922	NA	323881	19660	109559
1991	18221	NA	614055	21375	373
1992	121428	2569	398271	NA	NA
1993	38387	68177	197331	1196	17914
1994	528625	7575	86101	3834	35265
1995	756541	NA	293321	NA	1657
1996	633168	11332	147489	3153	677725
1997	1044615	9653	162696	9181	14246
1998	656100	3070	3566	3096	13231
1999	1057316	116176	25604	NA	1111277
2000	1623224	482631	159004	5020	401837
2001	5039634	234820	814986	97634	646380
2002	4699166	1233276	251424	53653	154309
2003	6454208	3022233	569770	63391	433118
2004	8037903	6061855	374506	24222	410622
2005	10094989	1823941	453475	51173	457150
2006	14119671	4490534	670230	203685	338415
2007	25895471	4856050	768610	1016672	412023
2008	26835347	9247208	695410	1218164	473572
2009	29344932	6648707	NA	1405022	1774812
2010	23185662	4872066	NA	563660	2482573
2011	3364587	3760049	NA	1191753	19273301
2012	48484658	4580908	NA	1470599	4583927

Note: NA - Data not Available

Sources: UNCOMTRADE Statistics 2014, DGCI & S Calcutta 2014

Table 3.14

Export of India's other Spices and Spices products from 1988 to 2012

(Value in US Dollars)

Years	Aniseed	Caraway seed	Fennel Seed	Saffron	Thyme & Bay leaves	Mixture spices
1988	8192	NA	1439527	1373570	225607	3652473
1989	12035	NA	1916143	2225482	109734	3962989
1990	22017	NA	1109361	552904	215289	3453256
1991	44039	NA	1954987	735420	82183	4235589
1992	54893	NA	2719937	433450	102677	3787069
1993	68518	NA	2047274	541223	202826	3721147
1994	60227	1633	1855306	428705	230449	4449117
1995	66163	20285	2252474	378050	229168	4896571
1996	233039	8244	5043110	198415	138.980	5505699
1997	809723	37982	9509181	672932	161105	6302348
1998	257859	233428	333831	844119	309786	7563820
1999	214389	70179	2583532	636682	258287	7885254
2000	192196	3	3293463	392062	249269	7612173
2001	162039	273011	3194570	261903	301815	8239664
2002	218742	380622	3512741	667819	303571	9740669
2003	356823	13625	3496395	371472	356782	5120780
2004	1142509	145376	5286872	839236	386055	5839308
2005	982683	40951	5808661	412036	594854	5798934
2006	958983	142015	7596933	759314	679196	7708237
2007	1134254	402072	10354586	383832	963211	12491541
2008	1783607	1145208	13514368	1480724	424341	20450378
2009	1238646	2481017	8880228	952036	NA	25648911
2010	1114882	1426253	16235965	1496374	NA	28697739
2011	1506922	898643	19491414	15162234	NA	38806963
2012	1592258	1472248	22407940	2170576	NA	42346184

Note: NA Data not Available
Sources: UN COMTRADE Statistics 2014
DGCI &S, Calcutta 2014

3.3. MAJOR ITEMS OF SPICES AND THEIR EXPORTS

1. Pepper (Piper nigrum)

Black pepper or 'Kalimirch' is the most important spice of the world and also in India. It is considered as 'King of Spices' as the volume of international trade of it is the highest among all the known spices. Till 1960-61 more than 50 percentage of India's export earning was from pepper alone. It is mostly found in hot and moist parts of Southern India, notably in Kerala. Kerala alone contributes 96 percentages of the total pepper production in India. It is one of the most ancient crops cultivated in India and has probably originated in the hills of South Western Ghats of India extending from North Karnataka to Kanyakumari. Pepper is also cultivated in Vietnam, Indonesia, Sri Lanka, Malaysia, Thailand, Brazil, and other tropical countries.

History of Pepper Trade

Pepper which is renowned as 'Black Gold', is considered to have its origin in Kerala. It was one of the oldest articles of trade between the East and Europe. Its history shows, how the western world's need for it and the vast profit attainable by meeting their demand have helped to shape the history of the World. Pepper and pepper products are in more frequent and regular use in Europe and America compared to other spices. It is widely used as flavour, medicines, condiment and pungency blending well with most savoury dishes.

During the middle age, pepper was the most valued spice and Venice, Geneva and other European cities owe much of their wealth in order to import pepper. Taxes and tributes were often paid in pepper. The first mention of pepper in England is in the status of

Ethelred (978-1076), where the Eastern lings coming to trade with London were required to pay taxes by cloth, gloves, vinegar and pepper as tribute at Christmas and Easter. Later in some parts of England, pepper rents were established, by which the tenants had to supply their lord with stated quantity of pepper. A Pepperers' Guild existed at the time of Henry II (1154-1189), and the traders being known as pepperers.

The demand for pepper in Western Europe was the main inducement to the Portuguese to seek a new sea route to India. During the middle age, Indian pepper had a profound influence in the European economy. During the beginning of the Christianera, the Arabs, Greeks and Romans carried on extensive trade with Kerala in pepper. Even though the share of pepper in India's export declined much, even today, Indian pepper and its products are famous in foreign markets.

Table 3.15

Exports of Pepper from India

(Quantity in tonnes Values in Rupees Lakhs)

Years	Quantity	Value	Years	Quantity	Value
1985-86	37620	17248.49	1999-2000	42824	88528.00
1986-87	37083	20033.01	2000-01	21830	38081.57
1987-88	41011	24057.78	2001-02	22877	20368.79
1988-89	36908	16451.17	2002-03	21609	17887.98
1989-90	34650	15334.53	2003-04	16635	14277
1990-91	29985	10239.93	2004-05	14150	12140
1991-92	20535	7431.7	2005-06	17363	15095
1992-93	23821	7893.58	2006-07	28726.3	30599
1993-94	48743	18909.67	2007-08	35000	51950
1994-95	37264	23664.19	2008-09	25250	41373.5
1995-96	26244	19629.84	2009-2010	19750	31392.5
1996-97	47893	41231.84	2010-11	18850	38318.5
1997-98	35907	49635.7	2011-12	26700	87813
1998-99	35109	63479.88	2012-13	15363	63810.29

Sources: Spices Statistics 2004,
Statistical Division of Spices Board, Cochin 2014

2. Cardamom Small (Elettaria cardamomum)

Cardamom small is often considered as the 'Queen of spices' because of its very pleasant aroma and taste. It is the dried ripe fruit (capsules of Cardamom plant). It is a perennial, herbaceous, rhizomatous plant. On the basis of the nature of panicles there are initially three natural varieties of green cardamom plants.

1. Malabar (Nadan /Native), as the name suggests, it is native variety of Kerala.

2. Mysore, as the name suggests, it is a native variety of Karnataka.

3 Vazhuka- It is a naturally occurring hybrid between Malabar and Mysore varieties.

Indian Cardamom is offered to the international markets in different grades. Alleppy Green Extra Bold (AGEB), 'Alleppy Green Bold (AGB) and Aleppy Green Superior' (AGS) are names that register instant appeal worldwide. Cardamom oil is a precious ingredient in food preparations, perfumery, health foods medicines and beverages. India, a traditional exporter of cardamom to the middle east countries where it goes mostly into the preparation of 'Guwa'-a strong cardamom-coffee concoction without which no day is complete or no hospitality hearty for an Arabic (Spices Board 2014).

In India, cardamom cultivation of is mostly concentrated in the evergreen forests of Western Ghats in South India. Cardamom is also grown as a commercial crop in Guatemala and on small scale in Sri Lanka, Vietnam, Thailand, Tanzania, Elsavador, Cambodia, Laos, Honduras and Papua and Ne Guinea.

Table 3.16

Exports of Cardamom (small) from India

(Quantity in tonnes Values in Rupees Lakhs)

Years	Quantity	Value	Years	Quantity	Value
1985-86	3272	5345-99	1999-2000	676	3270.72
1986-87	1447	1849.53	2000-01	1545	8468.02
1987-88	270	340.03	2001-02	1031	6167.80
1988-89	787	1037.36	2002-03	682	4707.42
1989-90	173	314.11	2003-04	757	3691.70
1990-91	400	1086.61	2004-05	650	2389.5
1991-92	544	1557.41	2005-06	862.7	2682.1
1992-93	190	750.57	2006-07	655.3	2348.1
1993-94	387	1454.83	2007-08	500	2475
1994-95	257	762.61	2008-09	750	4726.5
1995-96	527	1296.97	2009-2010	1975	16750.25
1996-97	226	869.67	2010-11	1175	13216.25
1997-98	370	1266.78	2011-12	4650	36322.28
1998-99	476	2525.27	2012-13	2372	21215.04

Sources: Spices Statistics 2004

Statistics Division of Spices Board, Cochin 2014.

3. Chillies (Capsicum)

Chilli is also called Red Pepper or Capsicum. It is the dried ripe fruit of the genus Capsicum. Capsicum annum is an annual sub-shrub, the flowers of which are borne singly and fruits usually pendent, which provide red peppers, cayenne, paprika and chillies, and sweet pepper (bell pepper) a mild form with large inflated fruits(Spices Board, 2014).

Columbus, on his discovery of the 'New World', did not find the spices of the orient as he has hoped, but he did find Capsicum or Chillies, which is America's most important contribution to the

spices. At that time this spice was widely spread and used throughout the Caribbean, Mexico, Central and South America. Capsicum soon spread throughout the tropics and warm temperature regions of the 'Old World' including India. It was first introduced in India by Portuguese towards the end of the 15th century. Now it is grown all over the world except in colder parts (Spices Board, 2014).

Dry chilli is extensively used as spice in curried dishes. It is also used as an ingredient in curry powders and in seasonings. Bird chilli is used in making hot sauces as pepper sauce and Tabasco sauce. As a medicine, it is used as a counter irritant in Lumbago, Neuralgia and Rheumatic disorders. Capsicum has a tonic and carminative action. Taken inordinately it may cause gastro-enteritis. The enzyme isolated from chilli is used in treatment of certain types of cancers. Capsicum oleoresin is used in pain balms. Dehydrated green Chilli is a good source of Vitamin 'C' (Spices Board, 2014).

India exports different varieties of chillies; the most popular of them are sannam and mundu varieties. Chillies are exported from India with or without stalks in powder forms or in crushed forms and in the paste forms. For the last few years chillies stood first or second in export earnings of spices and is continuing at high level but fluctuating in different years (See Table 3.17).

TABLE 3.17

Export of Chilli from India
(Quantity in Tonnes, Value is Rupees Lakhs)

Years	Quantity	Value
1985-86	1241	202.03
1986-87	4327	495.80
1987-88	6122	833.45
1988-89	7950	1730.42
1989-90	11967	2571.56
1990-91	24534	2755.55
1991-92	32603	8948.49
1992-93	17038	6837.09
1993-94	30776	7213.56
1994-95	20096	5711.63
1995-96	56165	19546.17
1996-97	50051	20145.15
1997-98	51779	15890.02
1998-99	68019	25287.26
1999-2000	63591	25471.55
2000-01	62448	22973.30
2001-02	69998	25244.02
2002-03	81022	31514.68
2003-04	86575	36687.81
2004-05	138072	49902.90
2005-06	113174	40300.50
2006-07	149022.2	80856.00
2007-08	209000	109750.00
2008-09	188000	188095.00
2009-10	204000	129172.80
2010-11	240000	153554.00
2011-12	241000	214408.00
2012-13	301000	238060.90

Source: Spice Statistics , 2004,
Statistics Division, Spice Board Cochin (2014).

3. Ginger (Zingiberofficinale)

Ginger is the dried underground stem of the herbaceous tropical plant. The whole plant is refreshingly aromatic and the underground rhizome, raw or processed is valued as spice. It is a slender perennial herb, 30-50 cm tall with palmately branched rhizome beginning leafy shoots (Spices Board, 2014).

It is a tropical plant with the centre of origin in India and Malaysia. Now it is widely cultivated in India, Jamaica, Sierra Leone, Nigeria, Malaysia, Southern China and Japan. Ginger has been used for thousands of years, both to spice foods and to smooth the digestive system. It is reputed to alleviate symptoms of motion sickness, make a tingling broth and refreshing tea; helps improve

circulation and make a beautiful potted plant. Fresh ginger, dry ginger power, oleoresin and oil used in food processing. It is indispensable in the manufacture of ginger bread, confectionary, ginger ale, curry powders, certain curried meats, table saucers, in pickling and in the manufacture of certain cordials, ginger cocktail, carbonate drinks, liquors, etc. (Spices Board 2014).

Ginger is generally traded in three forms, green (fresh), picked or preserved and dry. India, China and Nigeria are the important suppliers of dry ginger to the world market. Cochin ginger has well established trade name in the international market for its qualities like low fibre, better aroma and good appearance. In recent years the export of ginger is not much satisfactory

TABLE 3.18

Export of Ginger from India
(Quantity in Tonnes, Values in Rupees Lakhs)

Years	Quantity	Value	Years	Quantity	Value
1985-86	6816	1089.35	1999-2000	8923	3253.55
1986-87	4843	571.16	2000-01	6288	2682.06
1987-88	2628	488.99	2001-02	6464	2311.47
1988-89	6368	940.82	2002-03	8461	2396.59
1989-90	8139	1262.44	2003-04	4696	2275.00
1990-91	6555	1175.79	2004-05	13000	5950.00
1991-92	14259	2188.10	2005-06	9411.3	4295.50
1992-93	9825	1687.37	2006-07	7535	3883.10
1993-94	18442	2478.12	2007-08	6700	2800.00
1994-95	12022	1673.03	2008-09	5000.00	3482.50
1995-96	18483	3892.13	2009-10	5500.00	4675.00
1996-97	29737	5924.41	2010-11	15750.00	12131.25
1997-98	28268	7262.73	2011-12	21550.00	20420.02
1998-99	8683	4058.32	2012-13	22207.00	18725.14

Sources: Spice Statistics 2004,
Statistics Division, Spices Board Cochin,2014

4. Turmeric (Curcuma longa)

Turmeric is the boiled, dried, cleaned and polished rhizomes, of Curcuma longa. The plant is a herbaceous perennial 60- 90 cm high with shot stem tufted leaf. It is a native of India. Apart from India, it is cultivated in Pakistan, Malaysia, Myanmar, Vietnam, Thailand, Philippines, Japan Korea, China, Sri Lanka, Nepal, East West Africa, South Pacific Islands, Malagasy, Caribbean Island and Central America. In India, it is cultivated in the states of Andhra Pradesh, Maharashtra, Orissa, Tamil Nadu, Karnataka and Kerala (Spices Board, 2014).

Turmeric is used to flavour and to colour food stuff. It is a principal ingredient in curry powder. Turmeric oleoresin is used in brain pickles and to some extent in mayonnaise and relish formulation, non alcoholic beverages, gelatine, butter, cheese, etc. The colour curcumin extracted from turmeric, is used as a colorant (Spice Board 2014).

Turmeric is also used as a dye in textile industry. It is used in the preparation of medicinal oils, ointments and poultice. It is a stomachic, carminative tonic, blood purifier and an antiseptic. It is used in cosmetics. The aqueous extracts have bio-pesticidal properties (Spices Board 2014).

India is the major supplier and having near monopoly in turmeric market. China and Thailand are the other important suppliers. Alleppey turmeric is favoured for its curcumas content. Export of turmeric has also shown considerable growth during 1985-86 to 2012-13, but the export growth was not steady (see table 3.19) .

TABLE 3.19

Export of Turmeric from India
(Quantity in tonnes and value in Rupees Lakhs)

Years	Quantity	Value	Years	Quantity	Value
1985-86	8562	1209.44	1999-2000	37776	12351.81
1986-87	19529	1918.31	2000-2001	44627	11557.62
1987-88	8747	922.72	2001-2002	37778	9073.71
1988-89	18967	1939.28	2002-2003	37402	10337.99
1989-90	16900	1613.9	2003-2004	37044	13111.73
1990-91	13624	1548.48	2004-2005	43000	15650.
1991-92	19661	3776.22	2005-2006	46404.9	15286.0
1992-93	19726	4885.43	2006-2007	511712.1	16576
1993-94	25436	5256.00	2007-2008	49250	15700
1994-95	28286	4517.96	2008-2009	52500	24857.75
1995-96	27050	4620.33	2009-2010	50750	28123.00
1996-97	23019	5844.61	2010-2011	49250	70285.15
1997-98	28875	8306.5	2011-2012	79500	73434.4
1998-99	37297	12914.49	2012-2013	88513	55487.7

Sources: Spice Statistics 2004
Statistics Division, Spices Board, Cochin2014.

6. CORIANDER (Coriandrum Sativum)

Coriander is a strong smelling annual herb extensively grown in many climates throughout the world. It is an important spice crop having a prime position flavouring food. The plant is a thin stemmed; small, bushy herb, 25 to 50cm in height with many branches and umbels. Leaves are alternate, compound. The whole plant has a pleasant aroma. It is a native of Mediterranean and commercially produced in India, Morocco, Russia, East European Countries, France, Central America, Mexico and USA. It is a tropical

crop and can be successfully cultivated as a rabi season crop in an area free from severe frost during February when the crop flowers and sets its seeds (Spices Board, 2014).

The young plant is used for flavouring and garnishing curries and soups. The fruits (seeds) are unduly used as condiments with or without roasting in the preparation of curry powder, sausages and seasonings. It is an important ingredient in the manufacture of food flavouring, in bakery products, meat products, soda & syrups, puddings, carding preserves and liquors. In medicines it is used as a carminative, refrigerant, diuretic and aphrodisiac. In household medicines it is used against seasonal fever, stomach disorders and nausea (Spices Board, 2014).

In commerce, coriander is broadly divided into two types according to the size of the fruit, which in turn determines the volatile oil content and end use. The small fruited type is grown widely in cooler temperature regions while the longer fruited type is grown in tropical and subtropical environments.

India is the largest producer, consumer and exporter of coriander in the world with an annual production averaging around three lakh tonnes. The production fluctuates widely between years and has varied from below two lakh tonnes to above 4 lakh tonnes in the last decade. Rajasthan and Madhya Pradesh are the two largest producing states in India contributing over 2/3 to the country's total production (Spices Board, 2014).

India annually exports more than 30000 tonnes (40500 tonnes 2010-11) of coriander in recent years. Major buyers are Malaysia, UAE, Pakistan and Saudi Arabia.

TABLE 3.20

Export of Coriander from India
(Quantity in tonnes and Value in Rupees Lakhs)

Years	Quantity	Value		Years	Quantity	Value
1985-86	1864	160.06		1999-2000	14971	3346.11
1986-87	1177	140.13		2000-2001	12480	3736.43
1987-88	892	139.47		2001-2002	15925	4833.87
1988-89	8175	591.04		2002-2003	18065	5564.64
1989-90	2667	278.41		2003-2004	21018	7200.95
1990-91	3488	405.45		2004-2005	33750	8266
1991-92	9954	1323.47		2005-2006	23756.3	6770.7
1992-93	13737	2102.58		2006-2007	21389	7959.5
1993-94	13552	2103.51		2007-2008	26000	11025
1994-95	10702	1793.84		2008-2009	30200	20378.75
1995-96	11541	2243.34		2009-2010	47250	22585.5
1996-97	12574	3136.58		2010-2011	40500	16663.25
1997-98	23734	6434.69		2011-2012	28100	16401.85
1998-99	21044	4547.06		2012-2013	35902	20182.59

Sources: Spice Statistics 2004,
Statistics Division of Spices Board , 2014.

7. CUMIN (Cuminumcyminum)

Cumin is a dried, white fruit with greyish brown colour of a small slender annual herb. The surface of the fruit has five primary ridges, alternatively has four less distinct secondary ridges bearing numerous short hairs. The plant is 15 to 50 cm high. The aromatic seed like fruit is elongated, avoid, 3 to 6 mm long slightly bitter and has a warm flavour (Spices Board, 2014).

Cumin is indigenous to Northern Egypt, Syria, the Mediterranean region, Iran and India. It is also cultivated in Mexico, China, Sicily and Malta.

Cumin seed has an aromatic odour and bitter taste. It is used as a condiment; and is an ingredient in curry powders, seasonings of

breads, cakes and cheese. It is widely used in native dishes of Central & South America. It is also used in medicines as a stimulant, carminative, stomachic and astringent (Spices Board 2014).

India is the world's largest cumin seed producer and consumer and also the world's top exporter. India annually consumes around 100000 tonnes of cumin seed as it is a key ingredient of signature curry dishes, making it one of the most important spices for households. Export of Cumin from India was only 1061 tonnes valued 165.7 lakhs of rupees during 1985-86. It increased to 85602 tonnes valued 115306.61 lakhs of rupees during 2012-13 (See table 3.21).

TABLE 3.21

Export of Cumin from India
(Quantity in tonnes & value in Rupees Lakhs)

Years	Quantity	Value		Years	Quantity	Value
1985-86	1061	165.70		1999-2000	7575	4718.98
1986-87	1761	343.81		2000-2001	18891	17835.28
1987-88	913	248.22		2001-2002	17248	14818.03
1988-89	1213	391.63		2002-2003	10422	9326.33
1989-90	4221	690.47		2003-2004	7957	5883.79
1990-91	1029	304.95		2004-2005	13750	10190.
1991-92	1654	637.47		2005-2006	12897	9819.1
1992-93	2620	1438.87		2006-2007	26042.1	20224.1
1993-94	3225	1630.36		2007-2008	28000	29150.0
1994-95	5618	2449.65		2008-2009	52550	54400
1995-96	3871	1739.32		2009-2010	49750	54824.5
1996-97	4367	2466		2010-2011	32500	39597.75
1997-98	16281	8135.53		2011-2012	45500	64442.00
1998-99	10595	5980.91		2012-2013	85602	115306.61

Sources: Spice Statistics 2004, Statistics Division, Spices Board, 2014

8. FENUGREEK (Trigonellafoenum-graecum)

Fenugreek is an annual plant in the family Fabaceae with leaves consisting of three small obovate to oblong leaflets. It is a native of South Eastern Europe and West Asia, now cultivated in India, Argentina, Egypt and Mediterranean countries such as Southern France, Morocco and Lebanon. In India it is grown extensively in Rajasthan, Gujarat, Madhya Pradesh, UP, Maharashtra & Punjab. It is a cold season crop and is fairly tolerant to frost and every low temperature (Spices Board, 2014).

It is used both as a food and food additive as well as in medicines. Fresh tender pods, leaves and shoots are eaten as curried vegetable. As a spice, it flavours food. Powder of dried leaves is also used for garnishing and flavouring variety of food. The seeds are used in colic flatulence, dysentery, dyspepsia, chronic cough and enlargement of liver and spleen, rickets, gout and diabetes. It is also used as a carminative, tonic, and aphrodisiac. Its oil is used in the manufacturing hair tonics.

Fenugreek is traded manually in seed form and to a lesser extent as an extract (oil, Oleoresin). India is the major fenugreek exporting country followed by France, Egypt and Argentina (Spices Board, 2014).

TABLE 3.22

Export of Fenugreek from India
(Quantity in Tonnes& Value in Rupees Lakhs)

Years	Quantity	Value		Years	Quantity	Value
1985-86	2394	98.9		1999-2000	10069	2161.5
1986-87	3224	168.33		2000-2001	9353	1977.99
1987-88	2194	199.84		2001-2002	6582	1617.14
1988-89	3575	366.72		2002-2003	13193	2551.06
1989-90	6020	426.8		2003-2004	6932	1554.56
1990-91	3748	304.56		2004-2005	13750	2660.5
1991-92	6375	557.33		2005-2006	15525.4	3402.8
1992-93	5255	569.64		2006-2007	8545	2607
1993-94	4934	721.41		2007-2008	11100	3300
1994-95	7956	1224.97		2008-2009	20750	7175.25
1995-96	15138	1867.2		2009-2010	21000	6972.00
1996-97	8891	1204.57		2010-2011	18500	6548.10
1997-98	6006	987.14		2011-2012	21800	7275.2
1998-99	10221	1920.23		2012-2013	29622	10488.12

Sources: Spice Statistics 2004
Statistics Division of Spices Board, 2014

9. Nutmeg& Mace (Myristicafragrans)

Nutmeg and Mace are two spices from the same fruit of nutmeg tree Myristica Frangrans. The nutmeg is the oval shaped pit, which is the fruit, and mace is the bright red webbing that surrounds the shell of the pit. The mace is removed, dried and then ground into a coarse powder that turns a reddish colour. The taste of nutmeg & mace is slightly different from mace which is more pungent and spicy, similar to the combination of cinnamon & pepper. And nutmeg can be described as less intense than its sibling with sweetness similar to cinnamon but more piquant (Spices Board 2014).

Nutmeg tree is indigenous to Moluccas in Indonesia. The major growing areas are Indonesia & Granada. It is also grown on a smaller scale in Srilanka, India, China, Malaysia, Zanzibar, Mauritius and Solomon Island.

Both nutmeg and mace are used as condiment particularly in sweet foods. The spice in the ground form is mainly used in the food processing industry especially as a standard seasoning in many Dutch dishes. Nutmeg oleoresin is used in the preparation of meat products, soups, sauces, baked food, confectionaries, puddings, seasoning of meat and vegetable etc.(Spices Board, 2014).

Demand for Indian nutmeg and mace grew in the 1970s but has been relatively stable despite a significant decline in prices due to oversupply from the two main producers, Indonesia & Granada in the 1980s. Prices are crucial for the decision to plant, and since the spices come from a tree and are harvested 7-9 years after plantation with the tree reaching its peak after 20 years, investment in this sector is a long term venture (Spices Board).

Nutmeg and mace export from India has shown a steady increase in recent years. It was only 11 tonnes, valued 5.23 lakhs of rupees during 1993-94, it increased to 3231 tonnes valued 22591.87 lakhs of rupees during 2012-13. The major markets for Indian nutmeg & mace are UAE, Vietnam, Singapore, and USA (Spices Board, 2014).

TABLE 3.23

Export of Nutmeg and Mace from India
(Quantity in Tonner and Value in Rupees Lakhs)

Years	Quantity	Value		Years	Quantity	Value
1993-94	11	5.23		2003-2004	1420	2638.14
1994-95	5	5.69		2004-2005	1250	2235
1995-96	6	6.81		2005-2006	1529.6	3117.2
1996-97	5	4.61		2006-2007	2042.5	4264.3
1997-98	5	7.2		2007-2008	1300	2875
1998-99	10	6.00		2008-2009	2155	6074.75
1999-2000	94	127.84		2009-2010	3275	9186.5
2000-2001	856	1630.19		2010-2011	2100	9776.8
2001-2002	1346	1990.19		2011-2012	3620	24097.51
2002-2003	1381	2847.36		2012-2013	3231	22591.87

Sources: Spice Statistics 2004
Statistics Division of Spices Board, 2014

10. Tamarind (Tamarindus Indica)

Tamarind is a native to tropical Africa. The tree grows wild throughout Sudan and was so long ago introduced into and adopted in India that it has often been reported as indigenous to India. It was from India that it reached the Persian and the Arabian countries. Arabs,who called it 'tamarhindi' (Indian date) from the date-like appearance of the dried pulp, giving rise to both its common & generic names. The fruit was well known to the ancient Egyptians and to the Greeks on the 4th Century BC.

Tamarind is now extensively cultivated in India, Myanmar, Bangladesh, Malaysia, Sri Lanka, Thailand, several African, Central American & South American Countries. In India it is chiefly grown in Madhya Pradesh, Andhra Pradesh, Tamil Nadu and Karnataka.

Tamarind pulp is used in numerous culinary preparations. It is also a raw material for the preparation of wine like beverages. Tamarind Kernel powder is found to be extensively use for its sizing properties, in textiles, confectionary, cosmetics and pharmaceutical industries (Spices Board 2014).

India exports Tamarind in the form of tamarind fresh, tamarind dried and tanned concentrate. Tamarind exports are mainly to Middle East, Syria, UK etc. India faces competition from Thailand. Export of Tamarind from India has been increasing over the years. But there is wide fluctuation both in quality and value of export. During 1990-91 Indian's Tamarind export was 7715 tonnes valued ₹ 466.07 lakhs, it increased to 17950 tonnes valued ₹ 10753.15 lakhs during 2012-13(See table 3.24).

TABLE 3.24

Export of Tamarind from India (Quantity in Tonnes and Value in Rupees Lakhs)

Years	Quantity	Value	Years	Quantity	Value
1988-89	9384	612.79	2001-2002	7707	1778.23
1989-90	9160	582.57	2002-2003	12590	2275.35
1990-91	7715	466.07	2003-2004	12077	1852
1991-92	9859	932.19	2004-2005	5944	1834
1992-93	12460	1159.40	2005-2006	14101.3	3078.2
1993-94	11202	1230.11	2006-2007	10200	3000
1994-95	11276	1363.6	2007-2008	11250	31000
1995-96	16317	2071.5	2008-2009	11500	4105
1996-97	11472	1774.23	2009-2010	12200	4705.5
1997-98	7008	1485.96	2010-2011	17500	8000
1998-99	10969	2315.11	2011-2012	21395	12364
1999-2000	12998	2620.68	2012-2013	17950	10753.15
2000-2001	10026	2248.60			

Sources: Spice Statistics 2004
Statistics Division, Spices Board 2014

3.4. VALUE ADDED SPICES

Spices exports from India until recently were in raw form and in bulk packing. Structural changes in global spice market experienced during the recent years. The recent changes in the market behaviour, changes in consumer preferences and the emergence of super markets, shopping malls, etc. have resulted in the usage by more and more value added ready to use spice products and spices in the consumer packs.

India is now becoming a global hub for exporting value added spice. India has started exporting value added products from the late seventeen's only. The important value added products exported from India are Oils and Oleoresins of different spices, dehydrated green pepper in brine – vinegar, freeze dried pepper, frozen pepper, spice whole/powders/mixtures/pastes in consumer packets and tins, premixed sea sowings and mint products like menthol, menthol crystals and mint oils. Spice exports from India in value added form have shown a significant growth in recent years.

1. Mint Products

Mint is an aromatic perennial herb with creeping root stalk and an erect stem. They are distributed mostly in the Northern hemisphere. In India, it is largely confined to North India in the states of UP, Punjab and Haryana. Temperate to tropical climate is suited for plant growth. Sunny weather with moderate rain is conducive to its luxuriant growth (Spices Board).

The four most commonly cultivated spices of mint are-

Japanese Mint, Spear Mint, Pepper Mint , Bergamot Mint

Indian mint has a strong flavour and more pungent aroma than western varieties. This herb is often paired with lamb. Mint is sweet and strong with hints of a sharp lemony taste; and is pleasantly pungent and refreshing at the same time. The warm sweet fragrance of mint is cooling to the palate, learning a fresh after taste. It is used for flavouring meat, fish, sauces, soups, stews, vinegar, tea, tobacco and cordials. Mint oil is used for the production of natural menthol; dementhalised oil is used for flavouring mouth washes, tooth paste and pharmaceutical preparations. In medicines, it is used against stomach disorders, rheumatism, in ointments for headaches, in cough drops, inhalations, etc. The oil and dried plants are antiseptic, carminative refrigerant, stimulant and diuretic. Mint products include menthol, menthol crystals and mint oils (Spices Board, 2014).

India has attained a primary position and dominant source of mint oil and menthol in the world market replacing China to a great extent due to low price and comparable quality. India has evolved a number of new high yielding varieties which has helped to maintain the country in a lead position. During 1995-96 India's export of Mint products was 1352 tonnes worth of ₹ 47.5 crores, now (2012-13) it increased to 20039 tonnes valued ₹ 394049.95 crores (see Table 3.25).

TABLE 3.25

Export of Mint Oil/Products from India
(Quality in Tonnes & Value in Rupees Lakhs)

Years	Quantity	Value
1992-93	1510	2605-99
1993-94	1410	3015.72
1994-95	1583	4356.78
1995-96	1352	4750.12
1996-97	2371	13449.50
1997-98	3018	9693.12
1998-99	4279	12377.55
1999-2000	3489	12590.13
2000-01	4185	15498.22
2001-02	11295	48474.34
2002-2003	13589	56557.94
2003-2004	10110	39435.5
2004-2005	9300	40776.5
2005-2006	14544	81320.66
2006-2007	17642.1	120990.00
2007-2008	21100	128050
2008-2009	20500	142025
2009-2010	19000	118972
2010-2011	17450	169679
2011-2012	14750	222372
2012-2013	20039	394049.95

Sources: Spice Statistics, 2004
Spices Board, Statistics Division 2014.

2. Spice Oils and Oleoresins

Spice Oils

Spice oils are the volatile components present in most spices and provide the characteristic aroma of the spices. Spice oil is normally extracted by steam distillation. Spice oils have the major advantages such as standardisation, consistency and hygiene. The standard of quality expected in spice oil will differ depending on its end uses. Therefore, these oils are custom-made to meet the exact requirement of the user. Spice oils are mostly used in food, cosmetics, perfumes and personal hygiene products like toothpastes, mouthwashes and aerosols, besides in a variety of pharmaceutical formulation. India is a leading exporter of spice oils to West Europe, USA and Far East (Spices Board, 2014).

Oleoresins

Spice oleoresins represent the complete flavour profile of the spice. It contains the volatile as well as non volatile constituents of spices. Oleoresins can be defined as the true essence of the spices and can replace whole/ground spices without impairing any flavour and aroma characteristic. Oleoresins are obtained from spices by extraction with a non-aqueous solvent followed by removal of the solvent by evaporation. Spice oleoresins guarantee superior quality of flavour and aroma. They are complete and balanced, consistent and standardised. They ensure storage stability in the final product and are free from contamination. Custom made blends are also offered to suit the specific requirement of the buyer. Spice oleoresins are mainly used in processed meat, fish and vegetables, soups, sauces, chutneys and dressings, cheese and other dairy products, baked foods, confectionery, snacks and beverages. India enjoys the distinction of being the single largest supplier of spice oleoresins to the world (Spices Board 2014).

TABLE 3.26

Export of Oils and Oleoresins of Spies from India (Quality in Tonnes & Value in Rupees Lakhs)

Years	Quantity	Value		Years	Quantity	Value
1985-86	402	1487.04		1999-2002	3465	32750.10
1986-87	443	1483.05		2002-2001	3860	39371.33
1987-88	428	1496.77		2001-2002	4510	37311.10
1988-89	576	1857.32		2002-2003	4839	39094.23
1989-90	717	2285.77		2003-2004	5133	37991.76
1990-91	892	3198.74		2004-2005	5600	46375
1991-92	1392	6095.45		2005-2006	6074	50557.34
1992-93	1270	6674.58		2006-2007	6546	56116
1993-94	1355	7160.99		2007-2008	6600	56300
1994-95	1672	8676.88		2008-2009	6850	72050
1995-96	1912	8676.68		2009-2010	6750	70875
1996-97	2358	15901.21		2010-2011	7600	91062.45
1997-98	2419	23152.92		2011-2012	7265	130438.28
1998-99	2752	30086.60		2012-2013	9515	155888.19

Sources: Spice Statistics 2004
Statistics Division, Spices Board 2014.

3. Curry Products. (Powder/Mixtures/Paste)

Curry powder is a spice mix of widely varying composition based on South Asian Cuisine. Although spices are traded chiefly in an unprocessed form, a small yet significant quantity enters in international trade as spice powders. Curry powder is the foremost of those blends or mixes and sometime consists of 20 or more spices designed to add the characteristics flavour of an Indian curry, which is appreciated all over the world. It was largely popularised during the nineteenth and twentieth centuries through the mass export of the condiment to the western tables throughout Europe and North and South America, and through its use in British Army Nations. Curry powders did not become standardised, as many of the original blends of curry powder were still available throughout the world. The tradition of keeping special blends of curry powder simply became uneconomical, and curry powder became increasingly standardised outside India.

Most of the curry powders or mixtures include coriander, turmeric, cumin, fenugreek and red pepper in their blend. Depending on the recipe additional ingredients such as ginger, garlic, asafoetida, fennel seed, caraway, cinnamon, nutmeg, large pepper and black pepper may also be included.

Curry paste usually refers to a paste used as a cooking ingredient in the preparation of a curry. There are different varieties of curry paste depending on the region and also within the same cuisine. The most important varieties of curry paste are-Indian curry paste, Kroeung paste of Cambodian cuisine, Thai curry paste (Spices Board , 2014).

Due to the growing demand for value added spices as a result of changing life styles across the globe, India now exports more curry

powders and curry paste to the world markets. During 1994-95 India's curry export was only 4135 tonnes valued at ₹ 1443 lakhs, it increased to 17436 tonnes valued at ₹ 27515.66 lakhs during 2012-13 (See table 3.27).

TABLE 3.27

Export of Curry Products from India (Quality in Tonnes & Value in Rupees Lakhs)

Years	Quantity	Value		Years	Quantity	Value
1985-86	2527	366.36		1999-2000	5577	3913.47
1986-87	2712	414.01		2000-2001	5841	4299.56
1987-88	2559	438.10		2001-2002	6305	5052.61
1988-89	3066	566.26		2002-2003	8492	6893.67
1989-90	3330	664.04		2003-2004	8318	6805.2
1990-91	3144	660.04		2004-2005	7750	6610
1991-92	3516	1100.14		2005-2006	9340	7838.03
1992-93	2848	1023.54		2006-2007	9373.3	8586
1993-94	3411	1231.92		2007-2008	11500	11100
1994-95	4135	1443.27		2008-2009	13250	16375
1995-96	4246	1755.5		2009-2010	14300	18919
1996-97	4639	2056.52		2010-2011	15250	21050
1997-98	5132	2972.91		2011-2012	17000	25208
1998-99	5213	3597.9		2012-2013	17436	27515.66

Sources: Spice Statistics 2004
Statistics Division, Spices Board 2014

3.5. IMPORTANT DESTINATION FOR INDIA'S SPICES EXPORT

India exports spices and spice products to over 150 countries (2011-12). USA, China, UAE, Malaysia, Saudi Arabia, UK, Germany, Singapore, Sri Lanka &Pakistan are the top ten destinations of Indian spices and spices products during 2011-12. At the time of formation of WTO (1995), USA, Russia, UAE, Japan, UK, Germany, Canada, Saudi Arabia, Singapore and Netherlands were the important importers of spices and spice products from India. Their imports at that time were 56.5 percent of the total Indian spice export. The share of each country, the quantity and value of the

spices exported to these countries during 1995-96 and 2011-12 are given in the table 3.28 and 3.29.

TABLE 3.28

Country Wise Export of Total Spices from India (1995-96)

	Countries	**Quantity (Tonnes)**	**Percentage**	**Value (Rupees Crores)**	**Percentage**
1.	USA	24183.37	11.9	170.48	21.19
2.	UAE	23639.04	11.6	60.25	7.50
3.	UK	9412.59	4.6	45.74	5.70
4.	Japan	7408.40	3.6	32.17	4.00
5.	Russia	3942.35	1.94	29.45	3.66
6.	Singapore	8713.62	4.3	28.21	3.5
7.	Saudi Arabia	5462.50	2.7	26.95	3.35
8.	Germany	3885.44	1.91	26.28	3.26
9.	Netherland	3568.02	1.7	15.05	1.87

Source: Spice Statistics 1998, 2004 ,Spices Board Cochin, Statistics Division, Spices Board ,2014

TABLE 3.29

Country wise Export of Total Spices from India (2011-12)

Countries	Quantity Million Tonnes	Percentage	Value (Rupees Crores)	Percentage
USA	46046.23	8%	1605.44	16.4
China	21014.50	3.65	868.06	8.9
UAE	60945.54	10.59	588.23	6.01
Malaysia	54953.44	9.55	543.28	5.55
Soudi Arabia	21922.28	3.81	427.09	4.37
UK	16511.38	2.87	401.04	4.1
Germany	6425.72	1.11	367.95	3.76
Singapore	8552.87	1.49	356.15	3.64
Srilanka	51034.61	8.87	355.99	3.64
Pakisthan	34890.68	6.06	306.17	3.12
Total		56		59.49

Sources: Calculated from Spice Statistics 1998,2004, Spices Board Cochin Statistics Division, Spices Board 2014

USA is the single largest market for spices in the world. For Indian spices also USA was the single largest market both in 1995-96 and 2011-12. In 1995-96 India exported 241.83 million tonnes of spices valued ₹ 170.48 crores to USA. It increased to 46046.23 million tonnes valued ₹ 1605.44 crores in 2011-12. The share of export earnings from USA was 21% during 1995-96 and it declined to 16.4% in 2011-12. There are some changes in the major importers of spices during this period. China is the second largest market for Indian spices with 8.9 percent in value terms. During 1995-96, the share of China was negligible.

TABLE 3.30

Country wise Export of Indian Pepper from 1995-96 to 2010-11 (Five yearly interval data) (Quantity in tonnes and value in Rupees Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
USA	Q: 7740.1	Q: 10850.88	Q: 6596.3	Q: 6920.95
	V: 5408.73	V: 18840.82	V: 5368.5	V: 13883.41
Canada	Q: 1478.7	Q: 1238.7	Q: 1064.4	Q: 1065.56
	V: 1159.12	V: 2188.87	V: 801.7	V: 2111.25
UK	Q: 1068.8	Q: 1163.87	Q: 1977.5	Q: 1476.97
	V: 811.86	V: 2288.19	V: 1769.1	V: 3273.56
Italy	Q: 2171.6	Q: 1079.8	Q: 797.8	Q: 899.94
	V: 1745	V: 1971.68	V: 617.5	V: 1807.05
Germany	Q: 1089.1	Q: 679.23	Q: 1346.5	Q: 715.36
	V: 947.66	V: 1359.81	V: 1649.3	V: 133.37
Russia	Q: 3317.8	Q: 665.36	Q: 80.6	Q: 141.9
	V: 2798.35	V: 1235.11	V: 55.4	V: 281.21
Poland	Q: 1290	Q: 136.35	Q: 21.2	Q: 314.86
	V: 1038.49	V: 201.81	V: 305	V: 666.71
Others	Q: 8087.7	Q: 6016.11	Q: 5478.7	Q: 7314.54
	V: 5720.63	V: 9995.28	V: 4802.8	V: 14961.94
Total	Q: 26243.8	Q: 21830.3	Q: 17363.00	Q: 18850.08
	V: 19629.84	V: 38081.57	V: 15094.8	V: 38318.5

Note: Q: Quantity V: Value
Sources: Spice Statistics 1998, 2004
Statistics Division of Spices Board ,2014.

TABLE 3.31

Country wise Export of Cardamom (Small) from India from 1995-96 to 1995-96 to 2010-11 (Quantity in Tonnes and Value in Rupees Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
Saudi Arabia	Q: 187.5	Q: 496.1	Q: 511.2	Q: 723.5
	V: 599.07	V: 3329.79	V: 1676.1	V: 8155.96
Japan	Q: 227.9	Q: 267.54	Q: 225.4	Q: 26.26
	V: 448.40	V: 1587.08	V: 584.	V: 376.52
South Africa	Q: 7.7	Q: 120.82	Q: 8.00	Q: 61.61
	V: 15.66	V: 689.88	V: 32.5	V: 641.73
Kuwait	Q: 35.8	Q: 84.02	Q: 10	Q: 101.96
	V: 83.82	V: 506.88	Q: 27.1	V: 1109.6
UK	Q: 3.1	Q: 25.82	Q: 19.7	Q: 18.3
	V: 9.30	V: 128.18	V: 93.2	V: 238.14
Malaysia	Q: 20.8	Q: 16.61	Q: 34.7	Q: 20.79
	V: 33.16	V: 64	V: 96.6	V: 229.06
USA	Q: 2.6	Q: 13.04	Q: 5.7	Q: 40.4
	V: 8.05	V: 77.43	V: 21.5	V: 627.47
Others	Q: 99.49	Q: 521.06	Q: 48.2	Q: 182.27
	V: 88.49	V: 2084.78	V: 350.1	V:1837.76
Total	Q: 527	Q: 1545.02	Q: 862.9	Q: 1175.09
	V: 1296.97	V: 8468.02	V: 2881.1	V: 13216.24

Note: Q: Quantity V: Value
Sources: Spice Statistics 1998, 2004
Statistics Division of Spices Board, 2014

TABLE 3.32

Country wise Export of Chilly from India (Quantity in Tonnes and Value in Rupees Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
Sri Lanka	Q: 9049.8	Q: 20749.7	Q: 27582.2	Q: 34072.2
	V: 3096.83	V: 6182.23	V: 7482.2	V: 19728.61
USA	Q: 7667	Q: 13332.34	Q: 16579.7	Q: 17362.49
	V: 3359.15	V: 6822.21	V: 8592.00	V: 13801.24
UAE	Q: 10732.8	Q: 3843.23	Q: 8737	Q: 20702.72
	V: 3396.8	V: 958.5	V: 2272.5	V: 8478.70
Pakistan	Q: 3908.8	Q: 3484.13	NA	Q: 25712.02
	V: 752.47	V: 869.13	NA	V: 13491.59
Malaysia	Q: 2152.7	Q: 2290.19	Q: 26804.4	Q: 48248.35
	V: 805.32	V: 738.59	V: 8955.9	V: 35641.96
Bangladesh	Q: 10863.4	Q: 1080.5	Q: 670.7	Q: 32741.61
	V: 3348.69	V: 334.17	V: 166.00	V: 18207.91
Singapore	Q: 3886.5	Q: 962.05	Q: 1593.7	Q: 1744.9
	V: 1426.8	v: 362.79	V: 557.6	V: 1350.55
Others	Q: 7904.4	Q: 16705.55	Q: 31206.5	Q: 59415.75
	V: 3360.11	V: 6705.08	V: 12274.3	V: 42853.4
Total	Q: 56165.4	Q: 62447.69	Q: 113174.20	Q: 24000.04
	V: 19546.17	V: 22973.3	V: 40300.5	V: 153553.96

Note: Q: Quantity ,V: Value, NA: Not Available

Sources: Spice Statistics 1998, 2004

Statistics Division of Spices Board ,2014.

TABLE 3.33

Country Wise Export of Ginger from India (Quantity in Tonnes and Value in Rupees Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
Saudi Arabia	Q: 1031.6	Q: 819.83	Q: 626.5	Q: 741.78
	V: 731.13	V: 556.16	V: 581.1	V: 1378.42
USA	Q: 355	Q: 409.74	Q: 588.3	Q: 991.28
	V: 196.57	V: 265.52	V: 592.7	V: 1726.24
Yemen	Q: 681.3	Q: 303.66	Q: 207.7	Q: 350.70
	V: 448.00	V: 206.69	V: 210.2	V: 661.26
UAE	Q: 262.7	Q: 272.65	Q: 43.6	Q: 434.16
	V: 136.64	V: 184.32	V: 46.9	V: 478.77
Morocco	Q: 378.8	Q: 242.5	Q: 82.0	Q: 750.89
	V: 234.39	V: 180.01	V: 74.0	V: 1331.64
Bangladesh	Q: 6795.6	Q: 1343.77	Q: 5341.5	Q: 8275.38
	V: 598.6	V: 151.27	V: 601.3	V: 1735.22
Pakistan	Q: 8072.1	Q: 1890.2	NA	NA
	V: 985.3	V: 297.4	NA	NA
Others	Q: 905.9	Q: 1005.68	Q: 2521.7	Q: 4205.87
	V: 561.5	V: 840.69	V: 2189.3	V: 4819.68
Total	Q: 18483	Q: 6288.03	Q: 9411.3	Q: 15750.06
	V: 3892.13	V: 2682.06	V: 4295.5	V: 12131.23

Note: NA: Data are not available, Q: Quantity, V: Value
Sources: Spice Statistics 1998, 2004
Statistics Division of Spices Board, 2014.

TABLE 3.34

Country Wise Exporting Turmeric from India (Quantity in Tonnes &Value in Rupees Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
USA	Q: 2228.2	Q: 2583.72	Q: 2634.5	Q: 2664.02
	V: 684.84	V: 1195.01	V: 1425.1	V: 3916.33
UK	Q: 1719.4	Q: 1837.88	Q: 2771.8	Q: 2091.29
	V: 348.63	V: 626.18	V: 1076.3	V: 3060.82
Sri Lanka	Q: 1911.2	Q: 3100.85	Q: 3396.3	Q: 1913.67
	V: 229035	V: 568.37	V: 546.3	V: 1933.38
South Africa	Q: 1239.8	Q: 1540	Q: 2070.8	Q: 1891.67
	V: 209.34	V: 414.05	V: 716.8	V: 2907.78
Nether land	Q: 356.5	Q: 1100.5	Q: 1629.8	Q: 1509.53
	V: 172. 85	V: 361.41	V: 613.9	V: 2500.64
Japan	Q: 1761.4	Q: 3026.78	Q: 2608.3	Q: 3066.03
	V: 313.22	V: 901.98	V: 1126.5	V: 5799.29
Iran	Q: 3314	Q: 2970.6	Q: 1447.3	Q: 2563.43
	V: 490.32	V: 627.58	V: 373.6	V: 3724.07
Others	Q: 14020	Q: 28467.2	Q: 29846.1	Q: 33550.39
	V: 2171.77	V: 6863.04	V: 940.8	V: 46442.83
Total	Q: 27050.5	Q: 44627.03	Q: 464404.9	Q: 49250.03
	V: 4620.33	V: 11557.62	V: 15286.00	V: 70285.14

Note: Q: Quantity, V: Value

Sources: Spice Statistics 1998, 2004

Statistics Division of Spices Board, 2014.

TABLE 3.35

Country Wise Exporting Coriander from India (Quantity in Tonnes& Value in Rs. Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
Malaysia	Q: 3165.2	Q: 5358	Q: 7529.6	Q: 8449.81
	V: 585.75	V: 1608.53	V: 2366.2	V: 3450.01
Singapore	Q: 2591.8	Q: 1663.66	Q: 1104.3	Q: 1162.7
	V: 493.74	V: 474.9	V: 346.1	V: 450.09
South Africa	Q: 1263.8	Q: 1254.88	Q: 1322.1	Q: 2391.10
	V: 222.41	V: 314.32	V: 308.5	V: 1148.26
UAE	Q: 1622.6	Q: 1324.64	Q: 3208.4	Q: 5473.13
	V: 297.89	V: 306.37	V: 712.3	V: 2141.95
Soudi Arabia	Q: 320.6	Q: 209.34	Q: 1258	Q: 2570.88
	V: 88.38	V: 106.52	V: 390	V: 1105.28
UK	Q: 633.6	Q: 593.45	Q: 1691.5	Q: 2635.12
	V: 136.84	V: 261.30	V: 598.5	V: 1427.28
USA	Q: 220.5	Q: 209.34	Q: 527.3	Q: 625.59
	V: 78.24	V: 106.52	V: 248.0	V: 399.67
Others	Q: 1723.3	Q: 1866.84	Q: 7115.5	Q: 17191.73
	V: 340	V: 557.97	V: 1801.1	V: 6540.72
Total	Q: 11541.4	Q: 12480.15	Q: 23756.3	Q: 40500.06
	V: 2243.34	V: 3736.43	V: 6770.7	V: 16663.26

Note: Q: Quantity, V: Value

Sources: Spice Statistics, 1998, 2004

Statistics Division of Spices Board, 2014.

TABLE 3.36

Country wise Exporting Cumin from India
(Quantity in tonnes& value in Rs. Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
Nepal	Q: 1556.6	Q: 3201.71	Q: 3065.6	Q: 1897.84
	V: 710.94	V: 3015.68	V: 2062.8	V: 2260.20
Singapore	Q: 173.1	Q: 1359.03	Q: 456.0	Q: 232.65
	V: 84.55	V: 1029.79	V: 582.4	V: 304.18
USA	Q: 301.3	Q: 1801.79	Q: 1875.3	Q: 2214.21
	V: 163.43	V: 1852.57	V: 1582.4	V: 2979.93
UK	Q: 389.9	Q: 1275.97	Q: 1604.5	Q: 2457. 16
	V: 189.34	V: 1324.66	V: 1324.2	V: 3242.77
Japan	Q: 398	Q: 752.01	Q: 954.1	Q: 488.17
	V: 232.04	V: s811.82	V: 877.3	V: 832.03
South Africa	Q: 81.7	Q: 592.45	Q: 301.1	Q: 787.68
	V: 43.08	Q: 501.35	V: 223.4	V: 1032.64
Algeria	Q: 165	Q: 0.41	Q: 25.5	Q: 34.47
	V: 67.29	V: 0.52	V: 19.7	V: 28.07
Others	Q: 807.1	Q: ss9907.78	Q: 4596.9	Q: 24387.82
	V: 248.66	V: 9298.89	V: 3146.9	V: 28917.92
Total	Q: 3871.7	Q: 18891.15	Q: 12879	Q: 32500.08
	V: 1739.33	V: 17835.28	V: 9819.1	V: 39.597.74

Note: Q: Quantity V: Value

Sources: Spice Statistics 1998, 2004

Statistics Division of Spices Board, 2014.

TABLE 3.37

Country Wise Exporting Cumin from India
(Quantity in Tonnes &Value in Rs. Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
Morocco	Q: 1619.2	Q: 411.5	NA	NA
	V: 192.14	V: 84.00	NA	NA
South Africa	Q: 1059.3	Q: 649.44	Q: 813.9	Q: 915.82
	V: 124.94	V: 164.18	V: 151.00	V: 315.56
Srilanka	Q: 1300.6	Q: 508.5	Q: 739.2	Q: 337.83
	V: 141.80	V: 81.26	V: 82.5	V: 96.13
USA	Q: 669.5	Q: 276.26	Q: 821.6	Q: 477.8
	V: 111.54	V: 88.87	V: 268.8	V: 199.57
UAE	Q: 2730.1	Q: 1734.08	Q: 1158.5	Q: 2047.87
	V: 305.37	V: 304.78	V: 191.3	V: 662.01
South Africa	Q: 581.5	Q: 426.6	Q: 630.8	Q: 597.88
	V: 75.9	V: 75.89	V: 124.6	V: 173.63
Japan	Q: 401.5	Q: 1074.61	Q: 1409.3	Q: 1354.38
	V: 56.5	V: 261.53	V: 522.7	V: 804.77
Others	Q: 6776.6	Q: 4271.84	Q: 9952.1	Q: 12768.44
	V: 859	V: 917.48	V: 2061.9	V: 4296.42
Total	Q: 15138.3	Q: 9352.83	Q: 15525.4	Q: 18500.02
	V: 1867.19	V: 1977.99	V: 3402.8	V: 6548.09

Note: NA: Not Available ,Q: Quantity ,V: Value

Sources: Spice statistics 1998, 2004

Statistics Division of Spices Board, Cochin

TABLE 3.38

Country Wise Exporting Cumin from India
(Quantity in Tonner &Value in Rs. Lakhs)

Countries	2000-01	2005-06	2010-11
USA	Q: 75.86	Q: 146.7	Q: 164.22
	V: 160.14	V: 292.9	V: 657.86
UAE	Q: 437.77	Q: 740.2	Q: 651.57
	V: 787.94	V: 1453.3	V: 2913.76
Germany	Q: 69.8	Q: 46.2	Q: 24.47
	V: 107.15	V: 84.4	V: 119.6
South Africa	Q: 26	Q: 114.	Q: 169.58
	V: 35.58	V: 231.9	V: 512.55
Others	Q: 246.93	Q: 482.5	Q: 1090.16
	V: 539.39	V: 1054.7	V: 5573.04
Total	Q: 856.36	Q: 1529.6	Q: 2100.05
	V: 1630.20	Q: 3117.2	Q: 9776.81

Note: Data are not available for the year 1995-96 , Q: Quantity ,V: Value

Sources: Spice Statistics 1998, 2004

Statistics Division of Spices Board, 2014.

TABLE 3.39

Country Wise Exporting Tamarind from India (Quantity in Tonnes &Value in Rs. Lakhs)

Countries	1995-96	2000-01
Egypt	Q: 372.	Q: 1053
	V: 68.64	V: 250.42
Pakistan	Q: 4937.4	Q: 786.22
	V: 406.86	V: 106.47
Syria	Q: 353	Q: 491.7
	V: 73.87	V: 112.69
Soudi Arabia	Q: 1153.1	Q: 1315.62
	V: 229.86	V: 271.09
UAE	Q: 1438.8	Q: 2114.72
	V: 287.85	V: 471.59
Germany	Q: 888.1	Q: 84.19
	V: 110.36	V: 39.01
Japan	Q: 1587.7	Q: 10.5
	V: 123.71	V: 5.13
Others	Q: 5586.9	Q: 4170.27
	V: 770.35	V: 992.2
Total	Q: 16317.0	Q: 10026.22
	V: 2071.5	V: 2248.6

Note: Data after 2000-01 are not available, Q: Quantity ,V: Value

Sources: Spice statistics 1998, 2004

Statistics Division of Spices Board, 2014.

TABLE 3.40

Country Wise Exporting Curry powders/Mixture/ Paste from India (Quantity in Tonnes &Value in Rs. Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
UK	Q: 1348.5	Q: 1842.69	Q: 2193.6	Q: 2282.59
	V: 446.8	V: 1016.93	V: 1420.3	V: 2328.57
USA	Q: 240.3	Q: 441.13	Q: 922.2	Q: 1601.49
	V: 127.67	V:553.4	V: 1040.4	V: 2288.45
Soudi Arabia	Q: 413.9	Q: 448.73	Q: 909.	Q: 1510.88
	V: 211.04	V: 408.17	V: 906.1	V: 2349.9
Kuwait	Q: 270.9	Q: 277.95	Q: 468.6	Q: s438.88
	V: 157.35	V: 222.47	V: 431.6	V: 662.24
Canada	Q: 118.7	214.92	Q: 337.4	Q: 264.97
	V: 72.	187.44	V: 342.6	V: 420.89
Bahrain	Q: 129.3	Q: 104.89	Q: 262.2	Q: 180.63
	V: 67.90	V:110.42	V: 229.1	V: 301.73
Australia	Q: 314	Q: 92.63	Q: 561.0	Q: 552.79
	V: 139.7	96.82	476.1	691.66
Others	Q: 1410.2	2418.08	3685.7	8417.82
	V: 533.04	V:1703.91	V:2991.7	V:12008.04
Total	Q: 4245.8	Q: 5841.02	Q: 9339.7	Q: 15250.03
	V: 1755.49	V: 4299.56	V: 7838.00	V: 21050.50

Note: Q: Quantity V: Value

Sources: Spice Statistics 1998, 2004

Statistics Division of Spices Board, 2014.

TABLE 3.41

Country Wise Exporting Mint Product from India (Quantity in Tonnes &Value in Rs. Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
Singapore	Q: 113.4	Q: 678.49	Q: 1428.2	Q: 1414.25
	V: 510.35	V: 2557.47	V: 7373.2	V: 13695.10
USA	Q: 430.1	Q: 670.59	Q: 3420.6	Q: 3445.8
	V: 1777.51	V: 2938.69	V: 21270.4	V: 31444.03
UK	Q: 132.3	Q: 231.63	Q: 413.0	Q: 606.09
	V: 456.17	V: 828.97	Q: 2231.2	V: 6167.34
Germany	Q: 68.8	Q: 370.45	Q: 1312.5	Q: 1249.38
	V: 172.62	V: 964.55	V: 7287.1	V: 12078.24
France	Q: 200.1	Q: 260.01	Q: 646.2	Q: 247.81
	V: 639.99	V: 932.35	V: 3415.6	V: 2218.05
Brazil	Q: 140.4	Q: 189.83	Q: 400.11	Q: 579.02
	V: 406.87	V: 727.11	V: 2268.0	V: 5553.25
Argentina	Q: 107.6	Q: 85.84	Q: 14.9	NA
	V: 285.43	V: 308.6	V: 78.1	NA
Others	Q: s159.1	Q: 1698.79	Q: 690.6	Q: 9907.7
	V: 501.18	V: 6240.49	V: 37397.0	V: 98522.98
Total	Q: 1352.2	Q: 4184.63	Q: 14544.1	Q: 17450.06
	V: 4750.11	V: 15498.23	V: 81320.6	V: 169678.99

Note: NA: Data are not available ,Q: Quantity , V: Value

Sources: Spice statistics 1998, 2004

Statistics Division of Spices Board, 2014.

TABLE 3.42

Country Wise Exporting Spice Oils & Oleoresin from India (Quantity in Tonnes & Value in Rs. Lakhs)

Countries	1995-96	2000-01	2005-06	2010-11
France	Q: 46.1	Q: 137.74	Q: 344.7	Q: 142.85
	V: 381.15	V: 1547.57	V: 2740.4	V: 2624.05
Germany	Q: 169.5	Q: 297.45	Q: 734.5	Q: 670.18
	V: 1197.23	V: 3312.87	V: 5665.5	V: 9098.01
Japan	Q: 52	Q: 325.69	Q: 415.7	Q: 223.58
	V: 704.63	V: 5422.75	V: 5768.2	V: 5398.35
Spain	Q: 37.5	Q: 350.19	Q: 213.5	Q: 287.84
	V: 446.04	V: 4518.13	V: 1919.8	V: 1883.23
USA	Q: 825.8	Q: 1459.47	Q: 1621.0	Q: 1776.21
	V: 4978.45	V: 11281.04	V: 13993.9	V: 22420.68
UK	Q: 210.6	Q: 282.48	Q: 413.2	Q: 555.24
	V: 1053.s19	V: 2859.08	V: 2883	V: 6425.09
North Korea	Q: 34.1	Q: 51.25	NA	NA
	V: 345.61	V: 538.33	NA	NA
Others	Q: 536.2	Q: 955.4	Q: 2331.3	Q: 3944.09
	V: 2395.47	V: 9891.57	V: 17586.5	V: 43213
Total	Q: 1911.8	Q: 3859.67	Q: 6073.9	Q: 7599.99
	V: 11501.77	V: 39371.34	V: 50557.3	V: 91062.41

Note: NA: Data not available , Q: Quantity ,V: Value
Sources: Spice statistics 1998, 2004
Statistics Division of Spices Board, 2014.

3.6. NEW INITIATIVES FOR THE PROMOTION OF EXPORT

3.6.1. Spices Park

A spices park is an industrial park for processing and value addition of spices and spices products. The basic objectives of the Spices Park is to provide common infrastructure facilities for both

post harvest and processing operations of spices and spice products, and also to provide rural employment. It provides the processing facilities at par with the international standards. In the spices park, there is an integrated operation for cultivation, post harvesting, processing for value addition, packaging, storage and export of spices and spices products by meeting the quality specification of the importing countries. All the spices parks have processing facilities at par with international standards in which the products could undergo cleaning, grading, sorting, grinding, parking, warehousing, etc. It also provides common infrastructure facilities like roads, water supply, power stations, fire fighting and control systems, weighing bridges, effluent treatment plants, quality lab for checking basic parameters, banks and post office counters, restaurants, business centres, guest houses etc (Spices Board of India, 2014).

Establishment of Spices Parks in India is a major initiative of the Government as part of its commitment that any growth in the country should be more agriculture specific and pro-farmer. Now Spices Board is in the process of establishing Parks across the major producing/marketing centres. It aims to establish at least one Spices Park in each state by the end of the XIIth Plan period. At present there are four completed Spices Parks and three are nearing completion and the preliminary work of one of them has started (Spices Board of India, 2014).

3.6.2. Organic Farming

As per the report of the Ministry of Agriculture, Government of India, the demand for organically produced spices are growing at a fast rate internationally. Early entry of the country into this area would increase the foreign demand for Indian spices. The country

would be able to withstand competition from low cost countries in South East Asia with the help of organic farming (Spices Board).

Important steps to promote organic production of spices taken by Government of India are-

(a) Organic Farm Certification

This is a programme implemented to help growers/processors of spices in acquiring organic certification, which is a pre-requisite for marketing organic spices.

(b) Support for Vermin-Compost Units

In order to maintain soil fertility and to support organic production, organic inputs in the farm itself are needed. Government offered grant –in-aid to growers for vermin-compost.

(c) Organic Cultivation of Spices

Spices Board is extending assistance to growers for organic cultivation of spices by offering subsidies of 12.5 percent cost of production subject to a maximum of ₹5000/per hectare.

3.6.3. Quality Stipulations

The major spices consuming countries like Europe and USA are demanding more and more quality compliance from the producing countries. India was able to cope with the new stringent quality stipulations set up by the consuming countries. Spices Board has initiated various quality improvement programmes after the establishment of WTO. Now only those countries and producers who are able to meet the aspiration of consumers or importing countries can survive in the market. So production and marketing of spices should be in accordance with the internationally accepted food safety standards.

3.6.4. Sanitary and PhytoSanitary Norms of WTO

Sanitary and Phyto Sanitary (SPS) Agreement is an international treaty by the WTO. SPS Agreement was negotiated during the Uruguay Round by the General Agreement on Tariffs and Trade (GATT) and came in to force with establishment by the WTO an 1st January 1995. Under this agreement, WTO sets directions on member states' policies relating to food safety (bacterial contaminants, pesticides, inspection and labelling) as well as animal and plant health (Phyto Sanitary) about imported pests and diseases (Ministry of Agriculture, Government of India, 2013).

Most of the principles of SPS Agreement affect international trade and competitiveness of agro export. The explicit basis of certain commodities and the cost of compliance with the new standards affect the competitiveness of agricultural commodities especially those exported by the developing countries.

3.7. WORLD TRADE ORGANIZATION, NEW POLICIES AND FOREIGN TRADE

India has comparative advantage in the production of a number of agricultural commodities and, hence, it has oriented its policies towards promotion of export. The Marrakesh Treaty signed on April 15, 1994, which was endorsed by India as well, as intended to make international trade free including removal of quantitative restrictions on import of agricultural commodities. World Trade Organization (WTO) came into being on 1 January 1995, and this marked the beginning of a new era of international trade. Initially, it was expected that India would be a net beneficiary under this trade regime with greater access to the world market. The country introduced radical policy reforms in July 1991 encompassing various section of the economy including external trade. Though trade

restrictions on both export and import of agricultural products were left mostly untouched in 1991, subsequent trade policy changes gradually lifted most of the restrictions on the export and import of agricultural products. The quantitative restrictions on import of a number of agricultural commodities were removed on 1 April 2001. The EXIM policy (2001-07) and Foreign Trade Policy (2004-09) has promulgated a number of measures such as involvement of corporate sector in the promotion of Agricultural Export Zones (AEZs), Special treatment of Special Economic Zones (SEZs), duty free import of capital goods under Export Promotion Credit Guarantee Scheme (EPCG) and establishment of Vishesh Krishi Upaj Mandi Yojana.

3.7.1. EXIM POLICY (2002-07)

The new EXIM policy covers five years of the Xth Plan period. It contains a comprehensive package to give a massive thrust to exports. The new policy removed all quantitative restrictions on exports. The policy was geared towards doubling India's export of US $ 46 billion to more than US $ 80 billion over the Xth Five Year Plan by 2007. This envisaged a compound annual growth rate of 11.9 percent.

Salient Features of the EXIM Policy 2002-07

1. Adoption of harmonized commodity descriptions and counting system in 8 digits.

2. Jewellery imports has been liberalized and placed under OGR.

3. The import quota regime has been totally dismantled. The restriction of imports would now be limited to items that are banned under various international conventions for environmental reasons.

4. The thrust of the new policy is oriented towards export, production and promotion. The pride of place is given to the facilities in the Special Export Zones. The cost of capital would be drastically curtailed by introduction of offshore banking facilities. The income tax concessions were investigated and extended to benefit exporters.

5. The diamond dollar account facilities to all diamond raw and finished products.

6. The EXIM policy brought into account the commitment contained in the WTO's information technology agreement.

7. The agricultural export has been granted a number of incentives.

8. Credit facilities for exports has improved

9. An innovative programme has been launched for developing infrastructure in industrial clusters with high volume.

EXIM Policy and Agricultural Exports

Murasoli Maran, then Commerce and Industry Minister had stated that the New EXIM Policy 2002-07 has a special focus on agricultural export which would help in providing remunerative prices for the country's farm output. He prefaced the plan for stepping up agricultural export by quoting economists, who stated that every 1 percent switch in terms of trade in favour of agriculture would result in diverting about ₹ 8500 crores annually in favour of agriculture from the non agriculture sector; i.e. "The additional rural purchasing power would create a phenomenal effective demand." The measures in the EXIM policy are to free agricultural-exports from all hindrances. It include, removing export restrictions like

registration and packing requirements as wheat and wheat products, butter, groundnut oil ,horse grains and cashew exports to Russia under rupee debt repayment scheme. In addition, Mr. Maran stated that the newly created 20 Agri-Export Zones would be assisted in consultation with State Governments for development of necessary infrastructure, flow of credit and other facilities for promoting agri-exports. Transport assistance proposed to be made available for export of fresh and processed fruits, vegetables, floriculture, poultry, diary products and products of wheat and rice. This is expected to lead to diversification of agriculture activity.

3.7.2. FOREIGN TRADE POLICY (2004-09)

Foreign Trade Policy of 2004-09 laid down the ground rules and also modified them for carrying out the country's exports and imports. Apart from prescribing general provisions relating to imports and exports, it also provides special initiatives, duty exemption and remission schemes and promotional measures to help exporters compete in the global market place.

Trade is considered as a means to economic growth and natural development. In addition to earning of foreign exchange, greater economic activity also needs to be stimulated. It was felt that the EXIM policy with its limited focus may not be able to meet these objectives. It became necessary to go much beyond and take an integrated approach to the developmental requirements of India's foreign trade. It was in this context that EXIM policy was renamed as the New Foreign Policy.

Objectives of the Policy

1. To double India's percentage share of global merchandise trade within the next five years.

2. To act as an effective instrument of economic growth by giving a thrust to employment generation.

The strategies for achieving these objectives are

(i) Unshackling of controls and creating an atmosphere of trust and transparency to unleash the innate entrepreneurship of our businessmen, industrialists and traders.

(ii) Simplifying procedures and bringing down transaction cost.

(iii) Neutralizing incidence of all levies and duties as inputs used in export products.

(iv) Facilitating development of India as a global hub for manufacturing, trading and services.

(v) Identifying and nurturing special focus areas which would generate additional employment opportunities.

(vi) Facilitating technological and infrastructural up gradation of all the sectors of the Indian Economy.

(vii) Avoiding inverted duty structures and ensuring that our domestic sectors are not disadvantaged in the free Trade Agreements/Regional Trade Agreements/Preferential Trade Agreement, that India may enter into in order to enhance its exports.

(viii) Upgrading our infrastructural networks, both physical and virtual, related to the entire foreign Trade charm, to international standards.

(ix) Revitalizing the Board of Trade by redefining its role, giving it due recognition and inducting experts on Trade Policy.

(x) Activating our Embassies as key players in our expert strategy and linking our Commercials Wings abroad through an electronic platform for real time trade intelligence and enquiry dissemination.

The dynamic nature of international trade and frequent changes in the market condition necessitate the continuous change in the trade policy. Therefore Foreign Trade Policy revises frequently by incorporating necessary changes.

Foreign Trade Policy (2004-07): Annual Supplement (2005)

First Annual Revision to the Foreign Trade Policy 2004-09 has been announced on 8thApril, 2005. The high lights are as follows:

1. Removal of export cess on all agricultural and plantation commodities.
2. Reduced export obligation for SSIS under the EPCG Scheme.
3. Inter-State Trade Council proposed for export promotions.
4. Packages for marine and EOV sectors under way.
5. New deal to boost gems and jewellery sector.
6. Exports of value added dairy and poultry products facilitated.
7. Measures to make EPCG Scheme attractive to exports.
8. Annual advance license to be made available to all exporters.
9. New Trade Mark for handlooms on the firms of Wool mark and Silk mark.
10. Infrastructure initiative to reduce congestion at major ports.
11. Procedural simplification and cutting transaction costs.
12. Steps unveiled to enhance competitiveness of manufacturing sector.

The packages given to the agricultural sector, including removal of export cess on agricultural commodities, reduction in

export obligation from 8 times to 6 times for such units under EPCG Scheme and reduction in quantum of bank guarantee from 25 percent to 15 percent for units in AEs ,are expected to facilitate agriculture export.

Foreign Trade Policy (2004-09): Annual Supplement– 2006

The Hon. Minister of Commerce and Industry Mr. Kamal Nath released the Second Annual Supplement to the Foreign Trade Policy 2004-09 on April 17, 2006. The changes in the Annual Supplement resulted from the inputs received through interactive session with Various Export Promotion Councils, Industry Organization, Apex Chambers of Commerce and Industry and Sister Departments of Government.

Objectives of the Policy

(1) Putting the country's exports on a trajectory of quantum growth

(2) To create employment opportunities, especially in the rural and semi urban areas.

To attain these objectives the Annual supplement introduced two new Incentive Schemes – Focus Product Scheme (FPS) and Focus Market Scheme (FMS). The main objective of these two Schemes is to promote exports of products having high employment potential in rural and semi urban areas.

The Annual Supplement, in order to promote export of rural and agro products and to bring the benefits of foreign trade to rural areas, has expanded the sphere of Vishesh Krishi Upaj Yojana to include village industries based products for exports benefits and renamed the Scheme as Vishesh Krishi Upaj our Gram Udyog

Yojana. The products under the scheme are entitled for duty free credit scrip equipment up to 5 percent of value of export.

3.7.3. FOREIGN TRADE POLICY 2009-14

Government of India announced the Foreign Trade Policy of 2009-14 in August 2009. The policy came into force with effect from 27th August, 2009. With a view to continuously increasing India's percentage share of global trade and expanding employment opportunities, the policy has identified certain special focus initiatives for market diversification, technological upgradation, support of status holders, agriculture, handlooms, handicrafts, germs and jewellery, leather, marine, electronics and IT hardware manufacturing industries, green products, export of products from North-East, sports goods and toys sectors.

Due to weaker demand in developed economics, India's exports to developed countries has declined much, so the policy focus is on diversification of Indian export to other markets, especially those located in Latin America, Africa, parts of Asia and Oceania.

Initiatives taken under this policy are:

1. 26 new countries have been included within the ambit of focus market schemes.

2. The incentives provided under focus market scheme have been increased from 2.5 percent to 3 percent.

3. There has been a significant increase in the out lay under 'Market Linked Focus Product Schemes' by inclusion of more markets and products. This ensures support for exports to all countries in Africa.

Agriculture and Village Industry under the Policy

For the development of agriculture and expansion of agricultural export, the policy has taken certain initiatives.

a. VisheshKrishi and Gram UdyogYojana.
b. Capital goods imported under EPCG will be permitted to be installed anywhere in AEZ.
c. Import of restricted items such as panels, are allowed under various export promotion schemes.
d. Import of inputs such as pesticides is permitted under Advance Authorisation for agro exports.
e. New towns of export excellence with a threshold limit of ₹ 150 crores shall be notified.
f. Certain specified flowers, fruits and vegetables are entitled to a special duty credit scrip; in addition to the normal benefit under VKGUY.

Export Promotional Measures in the Policy

(a) Assistance to states for Developing Export Infrastructure and Allied Activities (ASIDE).
(b) Market Access Initiatives (MAI)
(c) Market Development Assistance (MDA)
(d) Meeting Expenses for statutory compliances in buyer country for Trade Related Matters.
(e) Towns of Export Excellence (TEE)
(f) Brand Promotion and Quality
(g) Test Houses etc.

Government is getting ready to announce the New Foreign Trade Policy (2014-19) soon.

3.7.4. Regional Economic Co-operation

The multilateral trade negotiations under the Doha Development Round are not taking place at desired level. This accelerated the regional co-operation and trade agreement activities across the world. So recent years have witnessed a shift in regional economic co-operation strategy of the majority of countries from multilateral to bilateral co-operation agreement (ADB, 2006).

In recent years, South Asian Region has received growing attention as a region that is integrating successfully into the global economy. Free Trade Agreements (FTAs) of the SAARC i.e., SAFTA and Bay of Bengal Institute for Multi-Sectoral Technical and Economic Co-operation (BIMSTEC) are likely to boost economic integration not only in South and South East Asia but also between the two regions. In order to maximise the benefits in terms of faster growth and reduction of poverty, the South Asian region needs to strengthen regional and bilateral co-operation in several areas.

India's first new generation FTA is the India-Sri Lanka FTA, which was signed in December 1998. Another is the Bay of Bengal Institute for Multi-Sect oral Technical and Economic Co-operation which was signed in February 2004. Other major arrangements with traditional market areas were India-Technical FTA of 2003, India-Mercosur FTA of 2004 and India-Singapore CECA of 2005.

Since 2005 some proposals for trade agreements with non-traditional markets like Israel, Central Asian and African Countries were considered. India also entered into FTA with ASEAN in 2009 and CECA with Malaysia in February 2011. India has given 'Most Favoured Nation' status to Pakistan. Negotiations for different agreements are continuing.

The formation of regional trading blocs like ASEAN FTA (AFTA), South Asia Free Trade Agreement (SAFTA) and Bangkok Agreement has given bargaining power for the region. So the region could significantly influence the global market.

India is the only country which has a negative list incorporated in a trade agreement with ASEAN. So India has a protective wall through which the country has included 489 items in negative list, which consists of 303 items of agricultural sector, 81 items of textile sector, 50 items of auto sector and 17 items of chemical sector.

3.7.5. Special Economic Zones (SEZs)

In recent years trade initiative has moved towards the Special Economic Zones (SEZs). The basic objective of SEZ is to promote the development of large scale manufacturing of unskilled labour intensive goods. The intention of SEZs was to enable exporters to avoid the restrictive labour laws and bureaucratic red tape governing transaction. SEZ Act was passed in India in the year 2005 and implemented from January 2006. Now India has 196 SEZs (Dec. 2014) in different parts of country and India has also some Agricultural Export Zones. All these have much impact on the export of our spices.

3.7.6. Export Promotion Councils

In India at present, there are 37 Export Promotion Councils functioning for each and every traditional and non-traditional commodity. India has Export Processing Zones, Software Technology Parks, Export Oriented Units, Export Oriented Hardware Technology Parks, Advance Licensing Export Promotion of Capital Good Policy, and Deemed Exports Policy, Free Trade Zone Policy, etc. A lot of incentives and tax concessions were given to these units.

Chapter IV

GROWTH OF INDIA'S MAJOR SPICES EXPORTS DURING THE PRE-WTO AND WTO PERIOD

In the modern world, trade performance of a country is the key determinant of economic performance. For trade performance many indicators are often used such as the level of openness (Ratio of Trade in Goods and Services to GDP), growth of exports over a given period of time (used in World Bank's World Development Indicators), Trade Performance Index or Revealed Comparative Advantage, etc.

In this chapter an attempt has been made to provide the details regarding the growth of India's major spices exports during the pre-WTO period and WTO period. The growth of all major spices and spices products, the instability in the growth and the trend of growth are given here. The analysis of this chapter gives answer for the first and second objectives of the research work i.e.

'To analyse the growth in the export of major Indian spices and spice products during the Pre-WTO and WTO period'

'To examine the instability and trends in the growth rates'

India, the major supplier of many spices, exports varieties of spices and its products to the world market. From 1994-95 to 2012-13 India's exports of spices increased 368.76 percent in terms of quantity and 1853.34 percent in terms of rupee value. With the establishment of WTO, trade liberalisation policies adopted by member countries led to the entry of new suppliers in the world market. At the same time instead of traditional markets, India found some new markets for her spices. Hence any external shocks from

any parts of the world as crisis and any favourable condition like prosperity may affect India's spices exports. In this context an effort is made to analyse the growth of India's spices export during the WTO period and compared with pre-WTO period. In order to find out the effects of internal and external shocks on the growth of spices exports, the instability and the trend of growth is also analysed.

In order to check whether there is a structural change in the growth of spices export between two periods-Pre WTO and WTO ,a popularly used test known as ' Chow Test ' was used.

The test result shows that, there is a structural change in the growth of export of spices during the WTO period. Total spices export from 1985-86 to 2012-13 has a break in 1995 with P vale 0.0160868. Out of the thirteen major spices and its products, ten shows a break in the year in which WTO came in to being (1995). The items showing no break are cardamom (P value 0.0518), mint products (P value 0.2256) and nutmeg/mace (P value 0.3342). For mint products only the data of three years and for nutmeg/mace only the data for two years prior to WTO were available.

In order to study the growth of spices exports, both the simple and compound growth rate for five years, ten years and WTO period (18 years) are taken. For the study, the export value in terms of Indian rupee is considered. Simple growth rate for each year is also taken for analysis of trend and instability. In order to study the instability, in the growth, Standard Deviation (STDV) is used. Trend of growth is obtained by using Ordinary Least Square (OLS) method. Regression equation for each commodity from 1995-96 is obtained. The analysis is presented in three major sections viz.,

Section A: Growth of Exports of Major Spices.

Section B: Instability in the Growth of Exports of Spices.

Section C: Trends in the Growth of Spices Exports.

Section A

4.1. Growth in the Export of Major Spices

India's total spices exports have increased much both in terms of quantity and value during the WTO regime. This increase in the growth of export is not uniform for all spices and in all periods. Growth in the export is also an indication of domestic supply and foreign demand for the commodity and there by export performance. In this section, the growth in the India's major spices during the WTO regime is analysed and compared to the pre-WTO period using Simple and Compound Growth Rates (CGR). A comparison is also made between Average Annual Growth Rate and Component Annual Growth Rate of spices and Aggregate Export of India. Recent trends, especially the trends in the export growth of last ten years (2003-04 to 2012-13) were also analysed and compared with the growth rate of ten years just preceding the WTO for understanding the differences.

Table 4.1

Average Annual Growth Rate (AAGR) and Compound Annual Growth Rate (CAGR) of Major Spices in the WTO regime (1995-96 to 2012-13)

Items	AAGR	CAGR
Pepper	5.51	6.77
Cardamom (S)	18.48	16.8
Chilli	20.72	14.9
Ginger	13.42	9.12
Turmeric	13.93	14.81
Coriander seed	13.45	12.98
Cumin seed	21.4	26.24
Fenugreek	11.93	10.06
Nutmeg & Mace	46.04	56.89
Tamarind	11.47	9.58
Mint products	25.03	27.82
Spice oil and oleoresin	16.05	15.58
Curry powder / Mixture / Paste	16.38	15.58
Aggregate Export	**16.58**	**16.39**

Note: AAGR: Average Annual Growth Rate, CAGR: Compound Annual Growth Rate
Sources: Calculated from Spices Statistics 2004, Statistics Section of Spices Board, Cochin, RBI Hand Book 2013-14
(Calculated from Table 3.15 to Table 3.27).

Observations in Table 4.1 revealed that India's aggregate export grew at an average of 16.58 percent per year during the WTO period and Compound Annual Growth Rate during this period was 16.39 percent. During the same period out of 13 major spices, the Average Annual Growth Rates of five items were above that rate and five were close to that level. Only pepper showed a single digit growth during the WTO regime. If one takes the Compound Annual

Growth Rate, out of 13 items of spices five showed a growth rate higher than the Compound Annual Growth Rate of India's aggregate exports and four are close to that rate. Only pepper, ginger and tamarind have a CAGR less than ten, of this ginger and tamarind has a CAGR close to ten. It shows that the growth rates for the export of many spices are significant during the WTO regime.

4.1.1. Export Growth Rate during the Pre-WTO and WTO Period

In order to understand the changes in the rate of growth of spices exports during the WTO period, a comparison is needed with the growth rate of export of Pre-WTO period.

Table 4.2

Ten Years Average Annual Growth Rate (AAGR) of Major Spices during the Pre-WTO and WTO period

Items	1985-86 – 1994-95 **Period I**	1995-96 – 2004-05 **Period II**	2003-04 – 2012-13 **Period III**
Pepper	13.63	-6.67	12.72
Cardamom	-21.398	11.42	15.05
Chilli	17.76	21.67	20.22
Ginger	-1.13	12.69	20.56
Turmeric	9.68	12.42	16.80
Coriander	15.04	15.28	12.88
Cumin	15.16	14.25	25.15
Fenugreek	14.96	7.76	14.14
Nutmeg/mace	8.43*	59.73	20.71
Tamarind	13.33**	2.96	15.53
Mint product	NA	22.36	19.41
Spice oil and Oleoresin	21.91	16.76	13.83
Curry powder/ Mixture/paste	13.09	15.21	13.84
Aggregate export	**19.65**	**15.13**	**18.57**

Note:NA: Data not Available.
*Growth of one year 1994-95.** Growth of 6 years 1989-90 to 1994-95.
Source: Calculated from Table 3.15 to Table 3.27.

Table 4.2 given reveals that during the Pre-WTO period (from 1985-86 to 1994-95) Average Annual Growth Rate of India's aggregate export was 19.65 percent. In the same period out of 13 spices only spice oil and oleoresins (21.9 percent) export had a growth rate higher than the growth rate of aggregate export. Cardamom small (-21.4 percent) and ginger (-1.13 percent) showed a negative growth rate during that period.

During the initial ten years period of WTO (Period II), the AAGR of aggregate export declined to 15.13 percent. During the same period, the growth rate of six items of spices became significant. The growth rate of chilli (21.67 percent), coriander (15.28 percent), nutmeg and mace (59.73 percent), mint products (22.36 percent), spice oil and oleoresins (16.76 percent) and curry products (15.21 percent) were above the growth rate of aggregate exports (15.13 percent). During period II only pepper export showed a negative growth (-6.67%).

During Period III (from 2003-04 to 2012-13), the rate of growth of aggregate export increased to 18.57 percent. During the same period five items of spices such as chilli (20.22 percent), ginger (20.56 percent), cumin (25.15 percent), nutmeg & mace (20.71 percent) and mint products (19.41 percent) showed a growth rate higher than the growth rate of aggregate export and growth rate of turmeric (16.80 percent) was close to that rate. The rate of all the items became positive and the rate of growth of seven items is higher than the growth rate of Period II.

4.1.2. Compound Annual Growth Rate in Ten Years

Compound Annual Growth Rate (CAGR) is the most commonly used measure of rate of growth for the study of growth performance and thereby the export performance. Comparing CAGR of Indian

spices exports during the pre-WTO and WTO period one has obtained more or less the same result that was obtained from AAGR.

Table 4.3

Ten Years Compound Annual Growth Rate of Major Spices during the Pre-WTO and WTO Period

Items	1985-86 – 1994-95 **Period I**	1995-96 – 2004-05 **Period II**	2003-04 – 2012-13 **Period III**
Pepper	3.21	-4.69	16.15
Cardamom	-17.69	6.30	19.10
Chilli	39.68	9.83	20.56
Ginger	4.38	4.34	23.46
Turmeric	14.09	12.97	15.52
Coriander	27.33	13.93	10.86
Cumin	30.91	19.34	34.65
Fenugreek	28.61	3.6	21.03
Nutmeg/mace	NA	78.49	23.95
Tamarind	12.10*	-1.21	19.23
Mint product	NA	23.98	25.88
Spice oil and Oleoresin	19.39	14.96	15.16
Curry powder/ Mixture/paste	14.69	14.17	14.99
Aggregate Export	**19.50**	**13.44**	**18.73**

Note: *Seven years CAGR (1988-89 to 1994-95), NA: Data not Available.
Source: Calculated from Table 3.15 to Table 3.27.
Date from Spices Board, Cochin, Reserve Bank of India Hand Book 2014.

From the table 4.3 it is clear that the CAGR of Indian aggregate export during the Period I (Pre-WTO period) was 19.5 percent. Out of 13 items of spices only four items such as Chilli (39.68 percent), coriander (27.33 percent), cumin (30.91 percent) and Fenugreek (28.61 percent) showed a growth rate higher than the CAGR of

aggregate export. Cardamom (S) had a negative growth rate (-17.69 percent) during the period. The growth rate of spice oil and oleoresin was very close to the growth rate of aggregate export.

During Period II (1995-96 to 2004-05), the CAGR of aggregate export had declined to 13.44 percent. During that period the growth rate (CAGR) of six items such as coriander (13.93 percent), cumin (19.34 percent), nutmeg and mace (78.49 percent), mint products (23.98 percent), spice oil and oleoresin (14.96 percent) and curry products (14.17 percent) was above the growth rate of aggregate exports. Pepper (-4.69 percent) and tamarind (-1.21 percent) showed a negative growth during that period.

During the period III (2003-04 to 2012-13) all the items of spices have a positive growth rate. The growth rate (CAGR) of aggregate export increased to 18.73%. At the same time, the number of items of spices having a growth rate higher than the aggregate export increased to eight. The CAGR of cardamom small (19.1 percent), chilli (20.56 percent), ginger (23.46 percent), cumin (34.65 percent), tamarind (19.23 percent), fenugreek (21.03 percent), nutmeg/mace (23.95 percent) and mint products (25.88 percent) are above the growth rate of aggregate export (18.73 percent). During this period, the growth rates of nine items have increased as compared to Period II.

4.1.3. Five Yearly Growth Rate

Since the growth rates of the WTO period are different in the early stage and later stage, it would be useful to analyse the growth rate on five yearly bases.

Table 4.4

Average Annual Growth Rate and Compound Annual Growth Rate of Spices Export during the Pre-WTO and WTO Period (Five Year Windows).

Items	1985-90		1991-95		1996-2000		2001-2005		2005-2010		1009-13	
	AAGR	CAGR	AAGR	CAGR	AAGR	CAGR	AAGR	CAGR	AAGR	CAGR	AAGR	CAGR
Pepper	18.59	(-) 2.32	8.68	18.24	26.39	35.15	(-) 39.74	(-) 20.44	19.00	15.77	4.11	9.05
Cardamom(S)	(-) 60.54	(-) 43.27	17.74	(-) 6.84	29.12	20.32	(-) 6.28	(-) 22.36	38.73	43.94	42.97	35.03
Chilli	19.57	66.32	15.96	15.69	29.9	5.44	13.45	16.78	19.02	26.23	15.49	4.82
Ginger	(-) 7.89	2.99	5.63	7.31	13.3	(-) 3.52	12.07	17.28	(-) 4.82	1.71	38.01	39.99
Turmeric	(-) 1.22	5.94	20.86	23.88	20.11	21.73	4.73	6.25	11.72	12.97	25.25	17.42
Coriander	(-) 7.17	11.71	37.26	34.64	12.47	8.32	18.09	17.31	20.1	27.24	12.09	(-) 0.19
Cumin	5.00	33.03	25.33	51.7	13.11	22.09	15.4	(-) 10.59	33.65	41.43	27.5	16.21
Fenugreek	8.84	33.97	21.09	32.10	11.36	2.97	4.15	6.12	19.27	15.43	23.13	7.89
Nutmeg & Mace	NA	NA	NA	NA	62.24	72.76	57.22	6.51	28.27	24.13	41.23	30.04
Tamarind	NA	NA	17.01	23.95	13.07	4.82	(-) 7.14	(-) 4.01	18.84	8.86	24.88	21.25
Mint Products	NA	NA	NA	NA	21.22	21.52	23.5	21.35	21.41	7.9	68.46	22.64
Spice oil &oleorein	17.13	8.98	23.6	22.09	11.01	23.28	11.76	3.33	10.42	6.99	20.37	16.69
Curry products	10.66	12.63	15.53	16.93	19.95	17.39	10.48	8.98	21.03	19.27	18.16	10.94
Aggregate Export	**14.55**	**21.49**	**24.75**	**20.32**	**13.15**	**8.45**	**17.11**	**13.02**	**16.24**	**13.12**	**18.25**	**14.20**

Note: NA : Not Available.
AAGR : Average Annual Growth Rate ,CAGR : Compound Annual Growth Rate
Source: Calculated from Table 3.15 to Table 3.27.

Table 4.4 revealed the average of five years annual growth rate from 1985-86 to 2012-13 and five years Compound Annual Growth Rate for the same period. The table revealed that both the AAGR and CAGR of pepper are higher during the period 1995-96 to 1999-2000 (1st five years of WTO) as compared to other periods. Both declined and showed a negative growth in the next five years of WTO period, and became positive after 2006. Similar result is obtained in the case of cardamom (small) too. AAGR and CAGR of cardamom were negative during the pre-WTO period, but in the five year period immediately after the existence of WTO, growth rates became positive and again it became negative during 2001-05 after that it turned to positive. For chilli the AAGR was highest during the period 1995-96 to 1999-2000 (first five years of WTO), but CAGR was lowest during the same period. It shows a strong base i.e., highest growth (123.03 percent) in the first year of WTO period (see Table 4.7). In all the periods Chilli showed a positive growth. Average Annual Growth Rate of ginger is also higher (13.3 percent) during the period 1995-96 to 1999-2000; the only exception is the AAGR of last five years (38.01 percent). But in the case of CAGR it is the lowest during the same period 1996-2000(-3.52 percent). That also shows high export growth in the first year of WTO period (1995-96). For all other products during the WTO period both the AAGR and CAGR are positive except for tamarind, which showed a negative growth of both measures during 2001-05 periods.

From table 4.4 it is understood that, the export growth of spices are not uniform during the WTO period. Growth of spices export is positive and satisfactory during the first five years of WTO period, after that the export growth of majority of spices either declined or became negative. Since 2005-06 the growth rate of all

items of spices except the AAGR of ginger and CAGR of coriander are positive.

During the study period, the number of items of spices having the growth rate greater than the growth rate of aggregate export of India also changed.

Table 4.5

Number of items of Spices Greater than the Growth Rate of India's Aggregate Export from 1985-86 to 2012-13 (five year windows)

Type of Growth	PERIODS					
	1985-86 to 1989-90	1990-91 to 1994-95	1995-96 to 1999-00	2000-01 to 2004-05	2005-06 to 2009-10	2008-09 to 2012-13
AAGR	3	2	8	3	10	9
CAGR	5	6	8	4	8	8

Note: AAGR –Average Annual Growth Rate, CAGR – Compound Annual Growth Rate.

Source: Table 4.4, Data from Spices Board, 2014.

From the table 4.5, it is clear that during the WTO regime, the number of commodities having a growth rate higher than the aggregate export of our country increased. During the pre-WTO period out of 13 items of spices only two (1985-90) and three (1991-95) were having an AAGR greater than aggregate exports and five (1986-90) and six (1991-95) were in terms of CAGR. In the immediate five years of WTO period (1996-2000) both increased to eight and continued to be high except during 2001-05. That shows that there was a temporary shock to India's spices export during the period 2001-05. It is also useful to know the number of items having a negative growth during the study period.

Table 4.6

The Number of Items of Spices having Negative Growth from 1985-86 to 2012-13 (Five Year Windows)

Type of Growth	PERIODS					
	1985-86 to 1989-90	1990-91 to 1994-95	1995-96 to 1999-00	2000-01 to 2004-05	2005-06 to 2009-10	2008-09 to 2012-13
AAGR	4	0	0	3	1	0
CAGR	2	1	1	4	0	1

Note: AAGR – Average Annual Growth Rate, CAGR – Compound Annual Growth Rate

Source: Table 4.4 , Data from Spices Board, 2014.

From the Table 4.6, it is clear that the number of items having negative growth in the first five year period of study (1985-90) and 2001-05 were higher than all other periods. The growth rate of Indian spices exports during 2001-05 of the WTO period experienced a shock. As per the Economic Survey of the Government of India (2002), it is an external shock due to semi recession faced by USA, one of the biggest trading partners of India, after the terrorist attack on the World Trade Centre in September 11, 2001.

4.1.4. Annual Growth Rate of India's Major Spices

The growth rates of export of different items of spices are not uniform in different periods of study. During the initial five years of WTO period (1995-96 to 1999-2000), a substantial positive change occurred in the growth of spices exports, on the other hand during the period of 2000-01 to 2004-05 (next five years of WTO), the growth rate was either low or negative. In order to know the difference in the growth rate in each year annual growth rate is used.

Table 4.7

Annual Growth Rate in the Export of India's Major Spices from 1985-86 to 2012-13

Years	Pepper	Cardamom	Chilli	Ginger	Turmeric	Coriander	Cumin
1985-86	104.69	-19.24	-156.53	-54.18	-34.97	-91.23	-117.73
1986-87	14.96	-106.14	89.77	-64.57	46.13	-13.3	72.99
1987-88	18.31	-169.36	51.94	-15.53	-73.19	-0.47	-32.58
1988-89	-38.01	111.45	73.05	65.44	74.27	144.4	45.60
1989-90	-7.03	-119.47	39.61	29.4	-18.37	-75.28	56.71
1990-91	-40.38	124.11	6.9	-7.11	-4.14	37.59	-81.72
1991-92	-32.05	36	117.79	62.11	89.14	118.3	73.74
1992-93	6.03	-73	-26.91	-25.99	25.75	46.29	81.41
1993-94	87.36	66.18	5.36	38.43	7.31	0.04	12.49
1994-95	22.43	-64.59	-23.34	-39.29	-15.13	-15.92	40.71
1995-96	-18.69	53.1	123.03	84.43	2.24	22.36	-34.25
1996-97	74.21	-39.97	3.02	42.01	23.5	33.52	34.91
1997-98	18.55	37.61	-23.73	20.37	35.15	71.86	119.36
1998-99	24.6	68.98	46.46	-58.2	44.13	-34.72	-30.77
1999-00	33.26	25.87	0.73	-22.1	-4.45	-30.67	-23.70
2000-01	-84.36	95.13	-10.32	-19.32	-6.64	11.03	132.96
2001-02	-62.57	-31.7	9.42	-14.87	-24.2	25.75	-18.53
2002-03	-12.99	-27.02	22.19	3.62	13.04	14.08	-46.30
2003-04	-22.55	-24.3	15.2	-5.21	23.76	25.78	-46.06
2004-05	-16.21	-43.5	30.76	96.14	17.7	13.79	54.92
2005-06	21.78	11.55	-21.37	-32.58	-2.35	-19.95	-3.71
2006-07	70.66	-13.3	69.63	-10.09	8.1	16.18	72.25
2007-08	52.93	5.26	30.53	-32.7	-5.43	32.58	36.56
2008-09	-22.76	64.6	-1.52	21.81	45.95	61.43	62.39
2009-10	-27.61	125.44	17.81	29.45	12.34	10.28	0.78
2010-11	19.94	-22.62	17.29	95.35	91.6	-30.41	-32.54
2011-12	82.93	101.1	33.38	52.07	4.38	-1.58	48.70
2012-13	-31.93	-53.77	10.46	-8.66	-28.02	20.74	58.18

Sources: Calculated from Table 3.15 to Table 3.27, Data obtained from Spice Board, Cochin.

Table 4.8

Annual Growth Rate in the Export of India's Major Spices and Aggregate Export from 1985-86 to 2012-13

Years	Fenugreek	Nutmeg & Mace	Tamarind	Mint Product	Spice Oil & Oleoresins	Curry	Aggregate Export
1985-86	-102.02	-	-	-	42.68	-6.17	18.39
1986-87	53.18	-	-	-	-0.27	12.33	-7.50
1987-88	17.16	-	-	-	0.92	5.66	13.36
1988-89	60.71	-	-	-	21.58	25.66	23.01
1989-90	15.17	-	-5.06	-	20.76	15.93	25.53
1990-91	-33.74	-	-22..31	-	33.61	-0.60	31.26
1991-92	60.43	-	69.32	-	64.48	51.09	16.31
1992-93	2.18	-	21.81	-	9.08	-7.22	30.21
1993-94	23.62	-	5.92	14.60	7.03	18.53	19.80
1994-95	52.95	8.43	10.30	36.79	19.20	15.83	26.17
1995-96	42.15	17.97	41.81	8.64	28.19	19.58	25.19
1996-97	-43.83	-39.02	-15.49	104.08	32.39	15.83	11.08
1997-98	-19.91	44.59	-17.73	-32.75	37.57	36.85	9.07
1998-99	66.54	-18.23	44.34	24.45	26.20	19.08	7.16
1999-00	11.84	305.90	12.40	1.70	8.48	8.41	13.25
2000-01	-8.87	254.57	-15.31	20.78	18.41	9.41	24.36
2001-02	-20.14	19.95	-23.47	114.03	-5.37	16.14	2.64
2002-03	45.58	35.82	24.65	15.42	4.67	31.07	19.94
2003-04	-49.53	-7.63	-20.59	-36.06	-2.86	-1.29	13.96
2004-05	53.73	-16.58	-0.98	3.34	19.94	-2.91	24.64
2005-06	24.61	33.27	51.78	69.03	8.63	17.04	19.56
2006-07	-26.64	31.33	-2.57	-190.60	10.43	9.11	22.53
2007-08	23.57	-39.42	3.28	6.10	0.33	25.68	13.72
2008-09	77.67	74.81	28.08	240.27	24.67	38.88	24.83
2009-10	-2.87	41.36	13.65	-17.71	-1.64	14.44	0.57
2010-11	-6.27	6.23	53.07	35.50	25.06	10.67	30.14
2011-12	10.53	90.21	43.53	27.04	35.94	18.03	24.89
2012-13	36.58	-6.45	-13.96	57.21	17.82	8.76	10.82

Note: Data for Some years are not available.

Sources: Calculated from Table 3.15 to Table 3.27, Data from Spices Board, and RBI Hand book 2014.

Table 4.7 and 4.8 have indicated that all major spices had both positive and negative growth in different years. Sometimes growth rate was greater than 100 percent and in some years it was less than (-) 100 percent. But the growth of India's aggregate exports was not much unstable. So it will be highly useful to study the instability in the growth rates of spices in different period of time.

SECTION B

4.2. INSTABLITY IN THE GROWTH RATE OF SPICES EXPORT

Indian spices exports suffered instability in its export growth during the study period. Some of the items of exports witnessed higher instability in export growth, while others experienced a relatively low instability.

From the Table 4.7 and 4.8 one can easily understand that the spices exports during the whole period of study were highly volatile. The growth rates in some years were very high and in some other years, it was very low. The ranges of growth rate of all products during this period were more than 100. In some cases it was greater than 200 or 300. This indicates high volatility in the rate of growth of export.

In this section the instability in the growth rate of major spices were presented. To examine instability in the growth rate of major spices exports from India, standard deviation technique was used. Standard deviation in the export growth rate for five years and ten years was estimated for comparisons.

Table 4.9

Instability in the Growth Rate of Major Spices Exports (Ten Year Periods)

Items	1985-86 to 1994-95 (Period I)	1995-96 to 2004-05 (Period II)	2003-04 to 2012-13 (Period III)
Pepper	49.42	46.47	43.46
Cardamom	101.67	50.8	61.55
Chilli	77.62	40.87	31.91
Ginger	47.24	48.82	47.72
Turmeric	50.04	20.80	32.68
Coriander	74.95	30.62	26.15
Cumin	69.76	67.84	42.29
Fenugreek	50.95	42.11	37.63
Nutmug& Mace	NA	119.67	41.11
Tamarind	3.124*	26.14	27.06
Mint products	NA	50.07	106.45
Oils & Oleoresin	20.3	14.90	13.01
Curry products	17.24	12.63	12.31

Note: NA: Data Not Available, *Data on 89-90 to 94-95.
Sources: Calculated from Table 4.7 and 4.8 ,Data from Spices Board, Cochin

From table 4.9, it is clear that the volatility in the growth rate of all spices decreased during the period II (first ten years of WTO period). For nutmeg and mace, the instability was very high (119.67) during this period, but comparison is not possible because of the non-availability of data for period I. During Period III, instability of cardamom, turmeric, tamarind and mint products, have increased as compared to period II, but compared with pre-WTO period, only the volatility of ginger has increased slightly. During WTO period, items

having a comparative stable growth are turmeric, coriander, tamarind, spice oils and oleoresins and curry products. Of the thirteen items of spices, spices oils and oleoresins and curry products have shown more or less high stability in growth during the pre-WTO and WTO period. The items having high instability in the growth rate of export during the WTO period are cardamom, pepper, chilli, ginger, cumin, fenugreek, nutmeg & mace and mint products. During this period, items like turmeric and tamarind have shown a moderate stability in growth rate.

Table 4.10

Instability in the Growth Rate of Export of Major Spices (Five Year Interval Period)

Items	1985-90	1991-95	1996-2000	2001-05	2006-10	2009-13
Pepper	53.12	51.12	33.08	31.92	44	48.71
Cardamom	110.35	85.15	41.89	57.16	56.61	77.96
Chilli	100.31	59.07	57.87	15.49	34.46	34.05
Ginger	55.19	43.14	55.45	47.82	29.41	38.73
Turmeric	60.32	41.20	20.84	19.78	20.49	45.47
Coriander	93.22	52.12	45.15	7.11	29.92	33.56
Cumin	79.71	65.86	65.74	77.65	34.64	41.61
Fenugreek	65.30	38.51	44.77	44.21	38.91	34.84
Nutmug & Mace	NA	NA	139.97	112.30	41.69	41.91
Tamarind	NA	33.44	29.87	19.77	21.78	26.39
Mint products	NA	NA	50.83	55.28	155.63	99.84
Oil	17.69	23.6	11.01	11.76	10.42	13.90
Curry products	11.87	21.64	10.45	13.92	11.64	12.12

Note: NA: Not Available

Sources: Calculated from Table 4.7 and 4.8, Data from Spices Board, Cochin

From the table 4.10 one can easily understand that for all the items of spices, growth rate was more unstable during 1985-90 as compared to the five years period just preceding the WTO (1991-95). But in the case of spice products like oil and oleoresins, curry products, the growth rate was more stable during the same period. During the WTO period, the instability in the growth rate of ginger and fenugreek increased during the first five years and it decreased for all other products. During the next five years (from 2000-01 to 2004-05), the volatility of cardamom, cumin, mint products, spice oil and curry products were increased. But instability in the growth rate of coriander (7.11) was lowest among all commodities in all periods. In recent years, the instability in the export growth of some items such as pepper, cardamom, turmeric, coriander, tamarind, mint products and spice oil and oleoresins is increasing. The export of mint products have been shown a very high variation in growth rate with a SDV of 155.65 during 2005-10 and 99.84 during 2009-13.

To sum up, from the Table 4.9 and 4.10 one can understand that the instability in the growth rate of Indian spices during the WTO period is lower than that of pre-WTO period. But as compared with the instability in the growth rate of aggregate export, instability is higher in spices export growth. Since all the national and international events which affect the demand and supply of spices in the global market have affected, the Indian spices export is more instable than many other products. Yet, the result obtained from the study shows that instability in the growth rate of spices export during the WTO period is less than that of pre-WTO period.

SECTION C

4.3. TRENDS IN THE GROWTH RATE OF SPICES EXPORT

The export of all the items of Indian spices has grown much both in terms of value and volume. These increases in the growth rate in different years are not uniform in all spices and all periods (Refer Section A of this chapter). The growth in the export is not stable in nature. They are highly instable for different commodities and in different periods (Refer Section B of this chapter). Since the growth and instability in the exports of spices are not uniform, to understand the long term movement of growth rate, one has to obtain the trend of growth. In this section, the trend in the growth of exports of different spices are obtained using Ordinary Least Square (OLS) method for pre-WTO period and WTO period, and presented in tables and graphs. Regression equations (Trend equations) are obtained for the purpose of predicting the future growth rate of export.

Table 4.11

Trends in the Export Growth of Major Spices during the WTO Regime

Years	Pepper	Cardamom	Chilli	Ginger	Turmeric	Coriander	Cumin	Fenugreek	Nutmeg & Mace	Tamarind	Mint Products	Spice Oil & Oleoresin	Curry products
1995-96	0.40	18.07	28.12	7.16	12.58	18.5	13.22	3.5	67.2	2.7	17.9	20.1	18.4
1996-97	1.00	18.12	27.21	7.83	12.74	17.8	14.18	4.5	64.7	3.8	18.7	19.6	18.2
1997-98	1.60	18.17	26.31	8.49	12.90	17.3	15.14	5.5	62.2	4.8	19.6	19.1	17.9
1998-99	2.20	18.21	25.41	9.16	13.06	16.7	16.10	6.5	59.8	5.8	20.4	18.6	17.7
1999-00	2.80	18.26	24.50	9.83	13.22	16.1	17.06	7.5	57.3	6.8	21.2	18.2	17.5
2000-01	3.40	18.31	23.60	10.50	13.38	15.5	18.03	8.5	54.8	7.9	22.1	17.7	17.2
2001-02	4.01	18.36	22.70	11.17	13.54	14.9	18.99	9.5	52.3	8.9	22.9	17.2	17.0
2002-03	4.61	18.40	21.79	11.83	13.69	14.3	19.95	10.4	49.8	9.9	23.8	16.8	16.7
2003-04	5.21	18.45	20.89	12.50	13.85	13.7	20.92	11.4	47.3	10.9	24.6	16.3	16.5

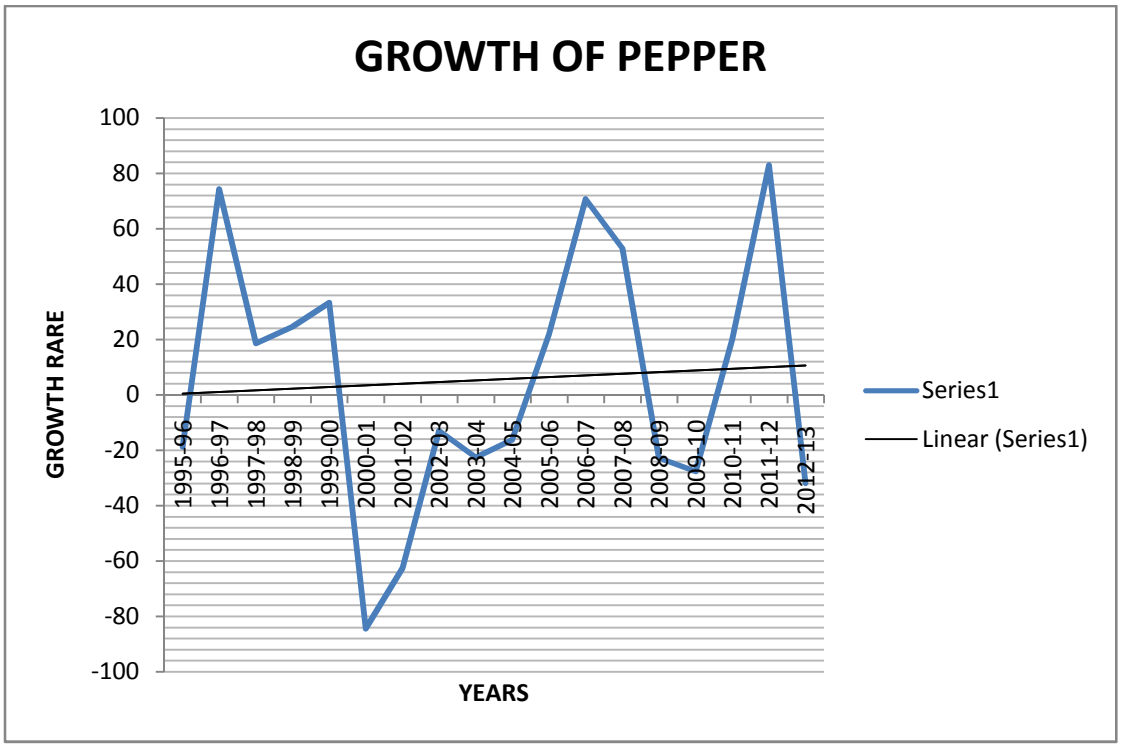
2004-05	5.81	18.50	19.99	13.17	14.01	13.1	21.88	12.4	44.8	12.0	25.4	15.8	16.3
2005-06	6.41	18.55	19.08	13.84	14.17	12. 6	22.84	13.4	42.3	13.0	26.3	15.3	16.0
2006-07	7.01	18.60	18.18	14.51	14.33	12.0	23.80	14.4	39.8	14.0	27.1	14.9	15.8
2007-08	7.62	18.64	17.27	15.17	14.49	11.4	24.77	15.4	37.3	15.1	28.0	14.4	15.5
2008-09	8.22	18.69	16.37	15.84	14.65	10.8	25.73	16.4	34.8	16.1	28.8	13.9	15.3
2009-10	8.82	18.74	15.47	16.51	14.81	10.2	26.69	17.4	32.3	17.1	29.6	13.4	15.0
2010-11	9.42	18.78	14.56	17.18	14.97	9.62	27.66	18.4	29.8	18.2	30.5	13.0	14.8
2011-12	10.02	18.83	13.66	17.85	15.13	9.03	28.62	19.4	27.3	19.2	31.3	12.5	14.6
2012-13	10.62	18.88	12.76	18.51	15.29	8.44	29.58	20.4	24.8	20.2	32.2	12.0	14.3

Sources: Calculated from Table 4.7 and 4.8
Data from Spices Board, Cochin

Table 4.11 clearly states that, during the WTO period, the growth rate of 8 spices have positive trend and only the growth rate of five items have negative trend. Spices having the positive trend in growth rates are pepper, cardamom (S), ginger, turmeric, cumin, fenugreek, tamarind and mint products. The spices and spice products having the negative trend in growth rates are chilli, coriander, nutmeg /mace, spice oils and oleoresins, and curry powders. It also shows that the growth trend of pepper, ginger, cumin, fenugreek tamarind and mint products are more encouraging than any other items.

Figure 4.1

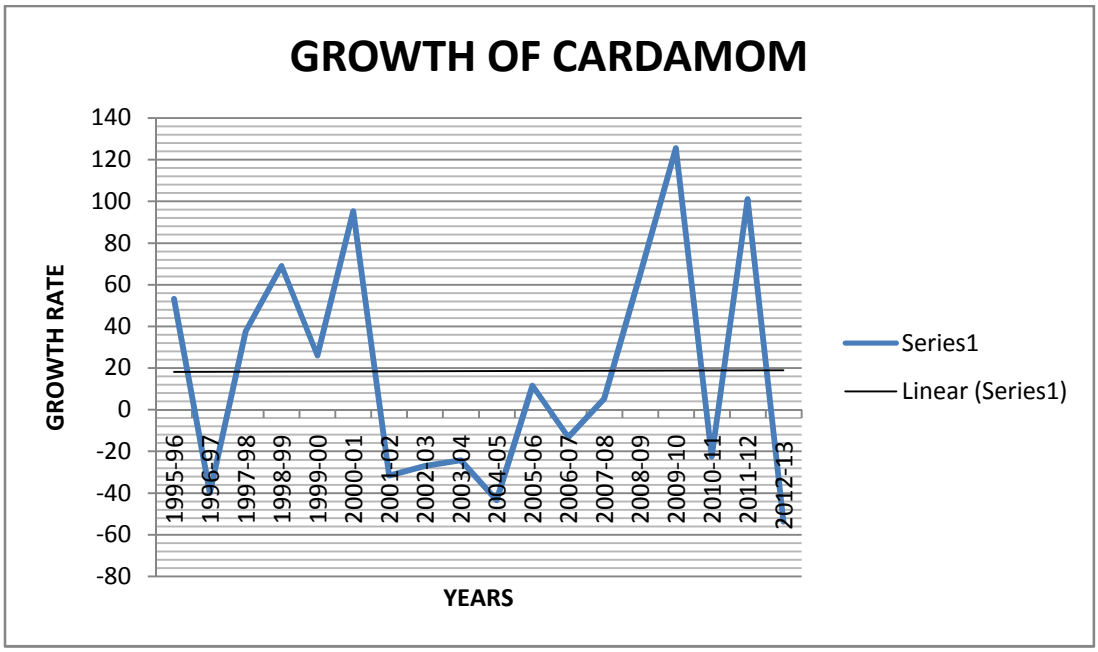
Growth, Instability and Trends in the Growth Rate of Pepper during the WTO period



Source: Table 4.7 and 4.11, Data from Spices Board, Cochin 2014

Figure 4.2

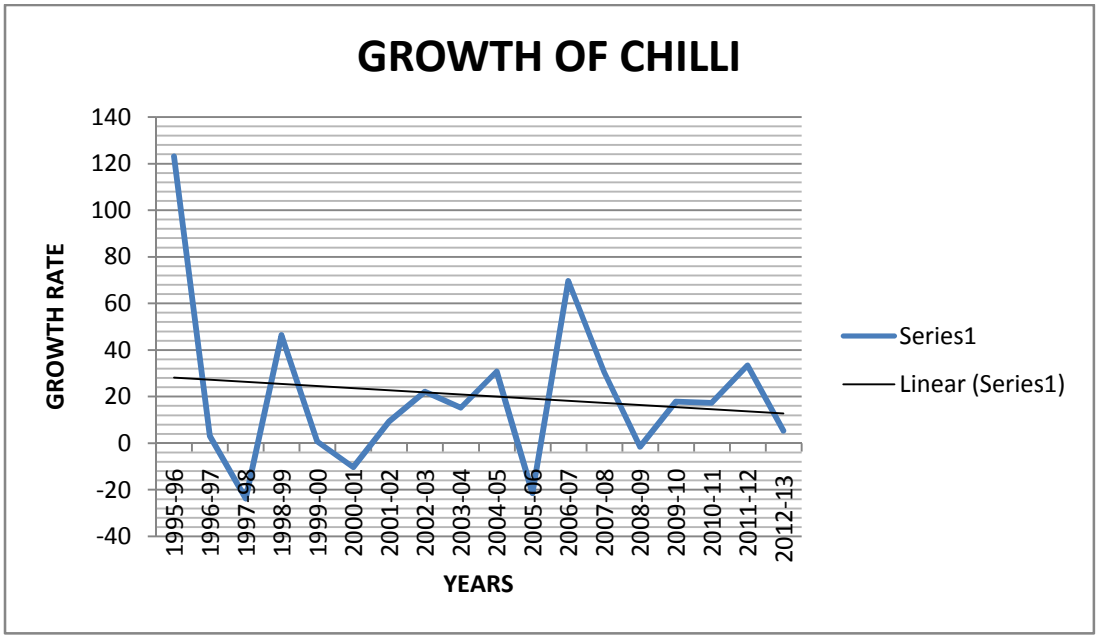
Growth, Instability and Trends in the Growth Rate of Cardamom(S) during WTO period



Source: Table 4.7 and 4.11, Data from Spices Board, Cochin

Figure 4.3

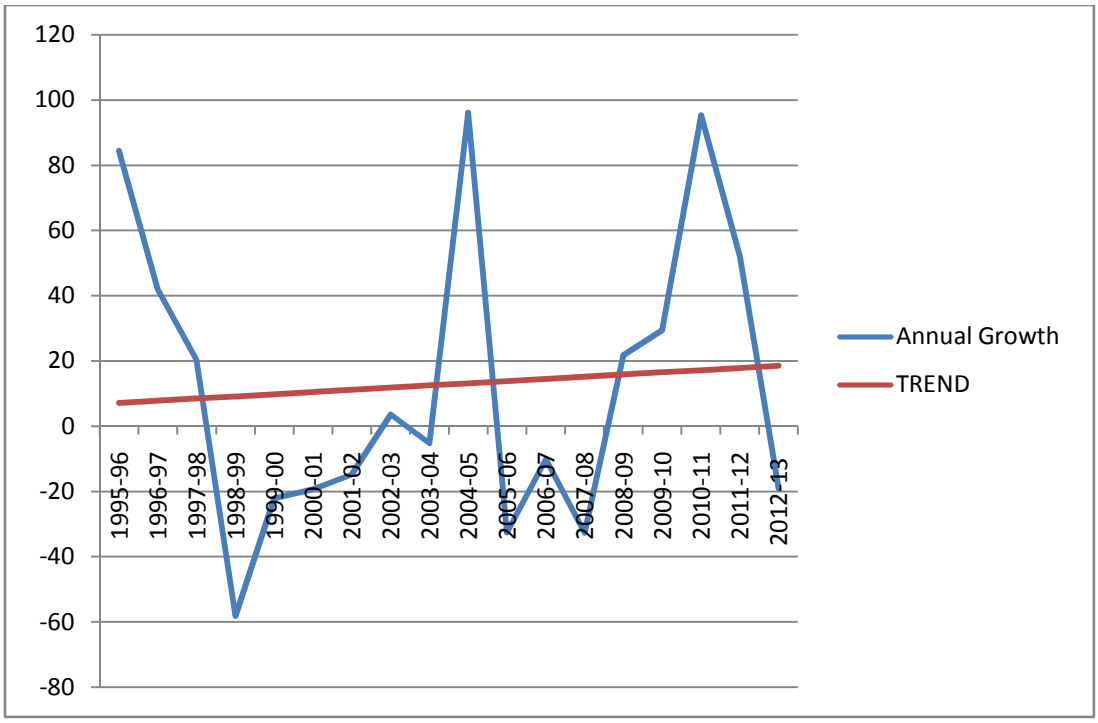
Growth, Instability and Trends in the Growth Rate of Chilli during WTO period



Source: Table 4.7 and 4.11, Data from Spices Board, Cochin,2014

Figure 4.4

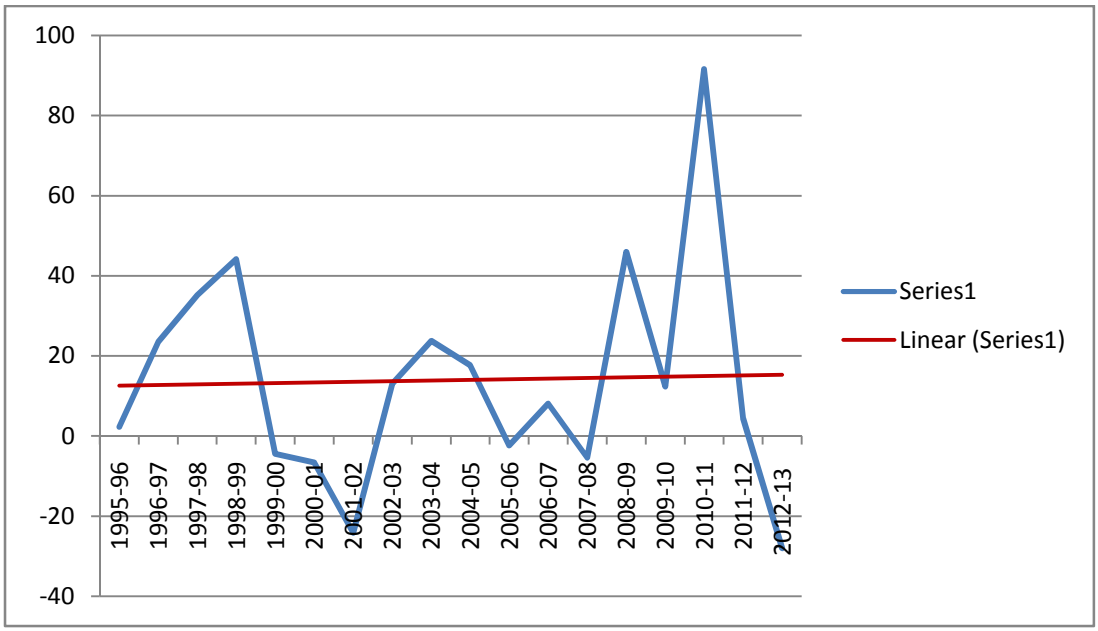
Growth, Instability and Trends in the Growth Rate of Ginger during WTO period



Source: Table 4.7 and 4.11, Data from Spices Board, Cochin.

Figure 4.5

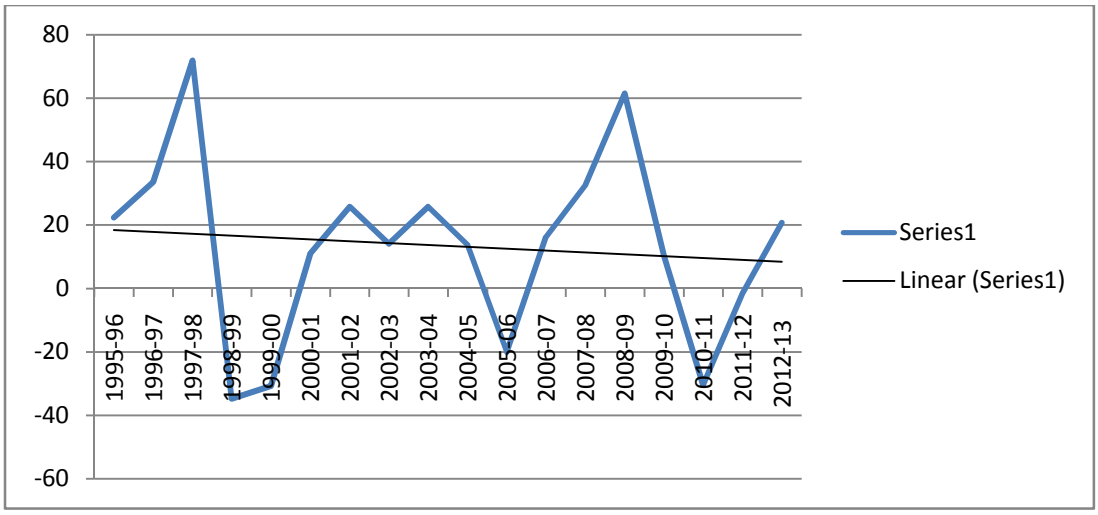
Growth, Instability and Trends in the Growth Rate of Turmeric during the WTO period



Source: Table 4.7 and 4.11, Data from Spices Board, Cochin.

Figure 4.6

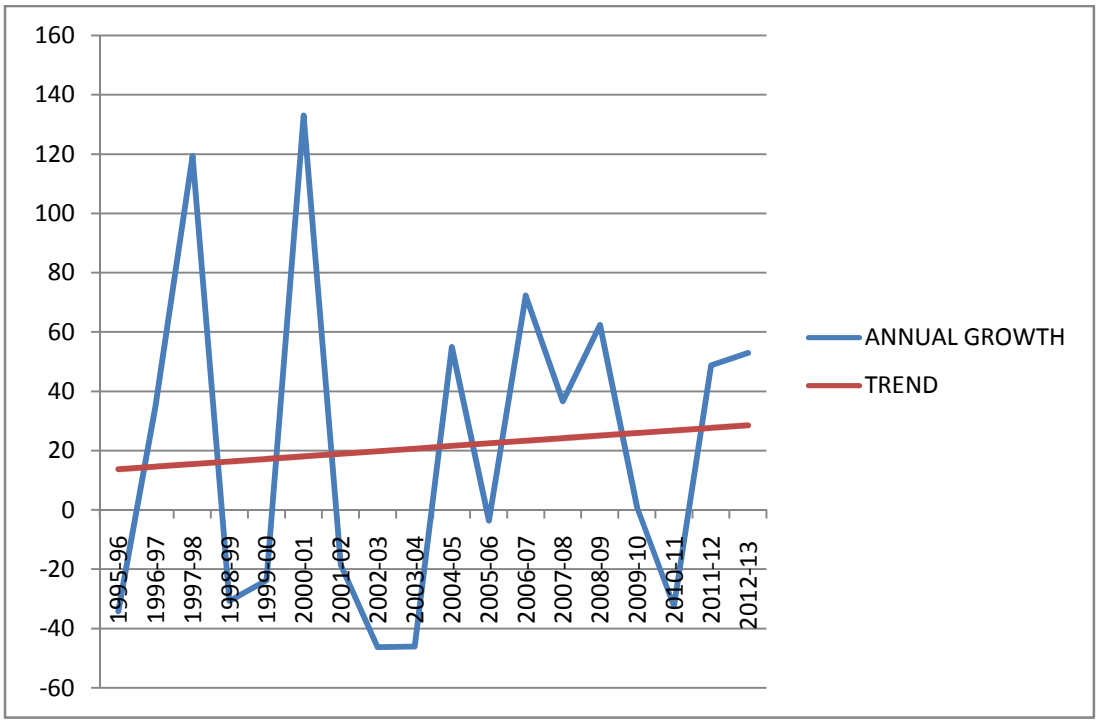
Growth, Instability and Trends in the Growth Rate of Coriander during the WTO period



Source: Table 4.7 and 4.11, Data from Spices Board, Cochin.

Figure 4.7

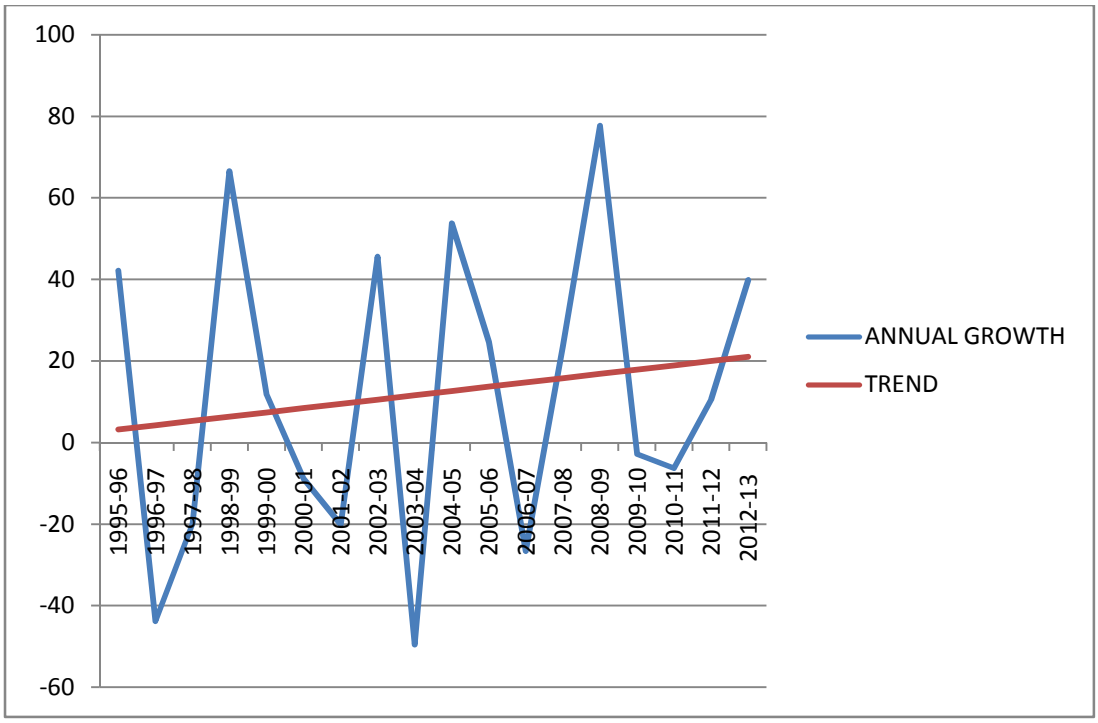
Growth, Instability and Trends in the Growth Rate of Cumin during the WTO period



Source: Table 4.7 and 4.11, Data from Spices Board, Cochin.

Figure 4.8

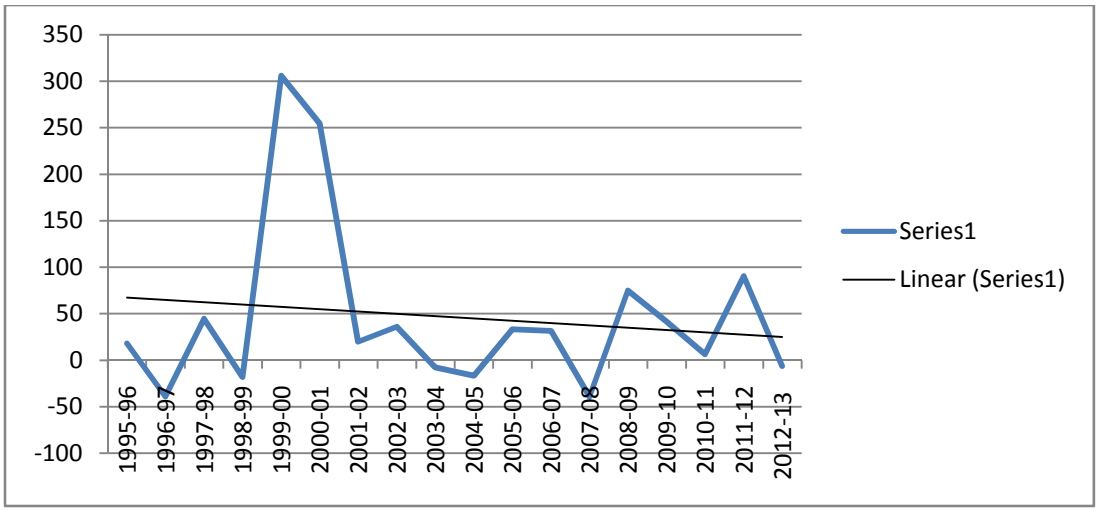
Growth, Instability and Trends in the Growth Rate of Fenugreek during the WTO period



Source: Table 4.8 and 4.11, Data from Spices Board, Cochin.

Figure 4.9

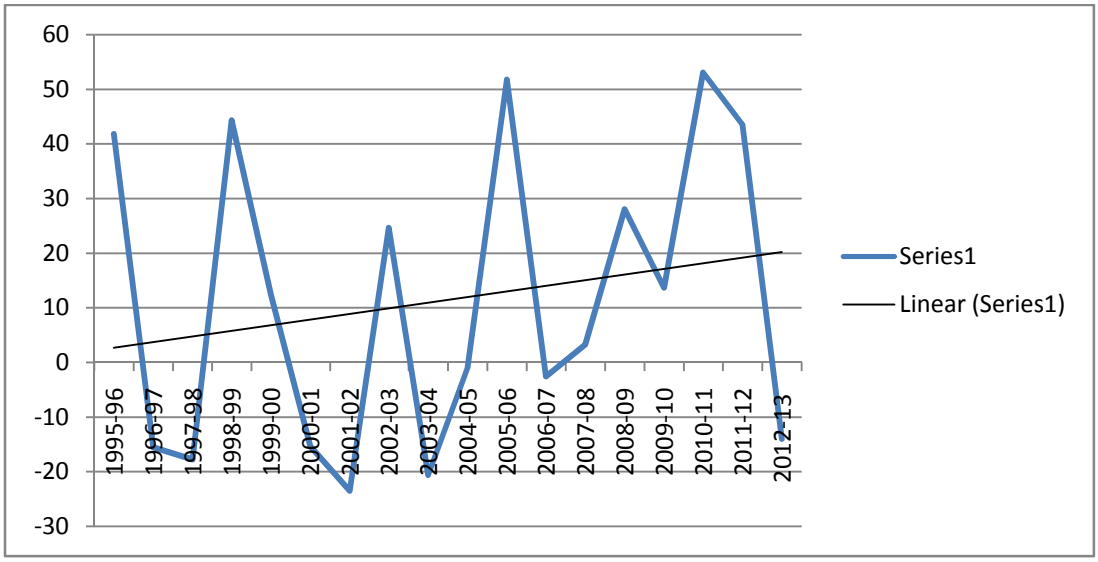
Growth, Instability and Trends in the Growth Rate of Nutmeg & Mace during WTO period



Source: Table 4.8 and 4.11, Data from Spices Board, Cochin.

Figure 4.10

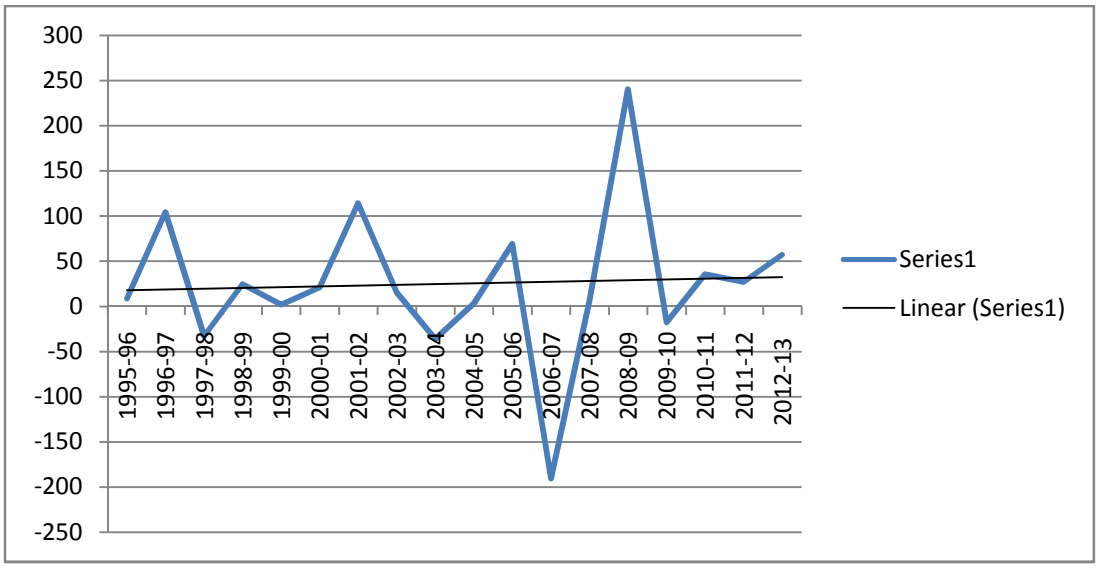
Growth, Instability and Trends in the Growth Rate of Tamarind during WTO period



Source: Table 4.8 and 4.11, Data from Spices Board, Cochin.

Figure 4.11

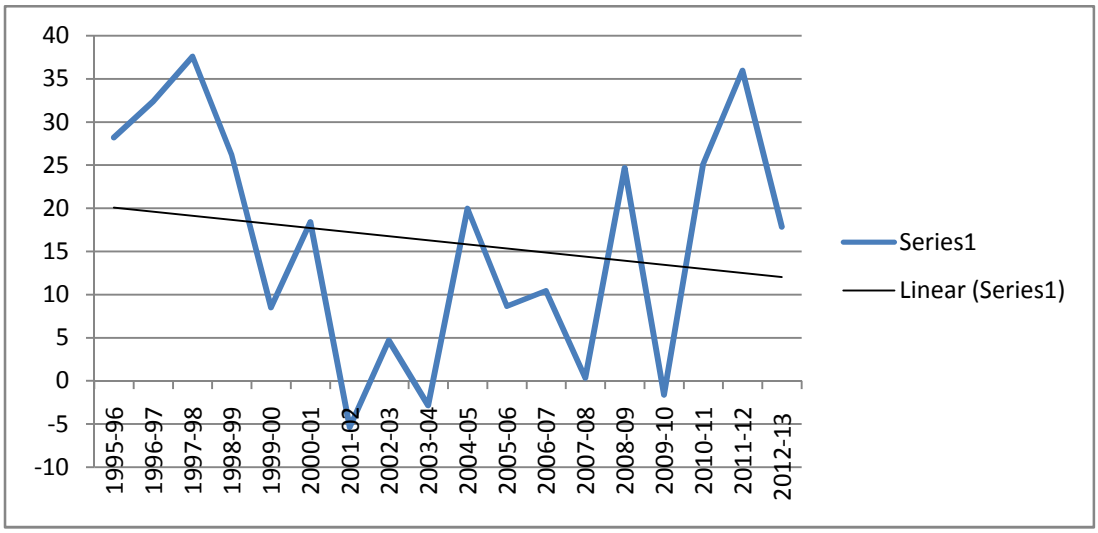
Growth, Instability and Trends in the Growth Rate of Mint Products during WTO period



Source: Table 4.8 and 4.11, Data from Spices Board, Cochin.

Figure 4.12

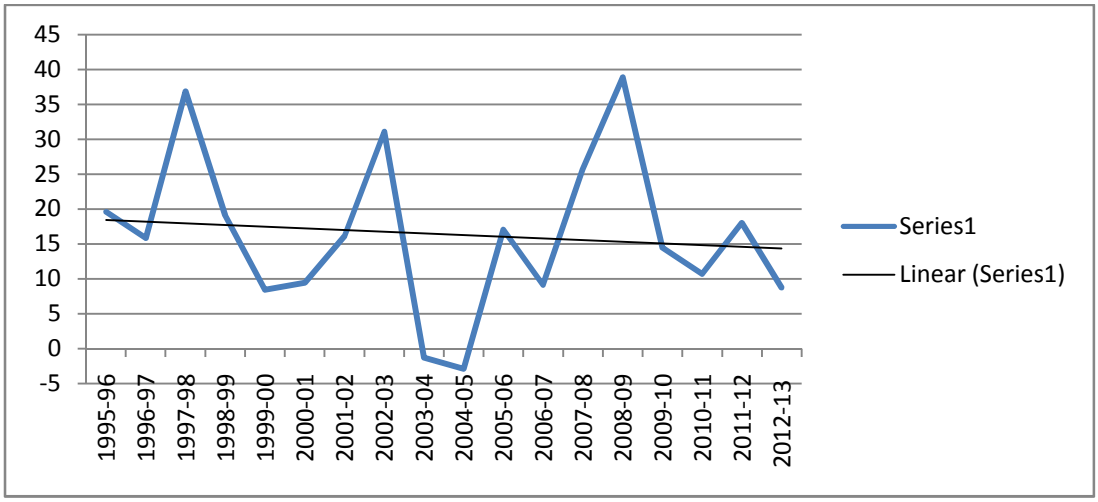
Growth, Instability and Trends in the Growth Rate of Spices Oils and Oleoresins during WTO period



Source: Table 4.8 and 4.11, Data from Spices Board, Cochin.

Figure 4.13

Growth, Instability and Trends in the Growth Rate of Curry Products during WTO period



Source: Table 4.8 and 4.11, Data from Spices Board, Cochin.

Figures 4.1 to 4.13 depict the same information described in the table 4.11. These figures clearly show the growth of major spices in the WTO period, its instability in the growth and the trend of growth. The positive trend of growth represents that export is growing at an increasing rate. The positive steepness of the trend lines represents a greater increase in the growth of exports. From these figures one can understand that the trend lines of pepper, ginger, cumin, fenugreek,tamarind and mint products are steeper than the trend lines of growth of other products. It means that average export growth of these items of spices is more than other items of spices. Coefficients of the trend equations are the slope of the trend line.

Table 4.12

Equation of Trend line of Major Spices' Export Growth during WTO Regime

Items	Trend Equations
Pepper	Y = 0.602x – 0.2048
Cardamom (S)	Y = -0.0475x + 18.025
Chilli	Y = -0.9035x + 29.02
Ginger	Y = 0.67x + 6.49
Turmeric	Y = 0.1591x + 12.42
Coriander	Y = -0.5889x + 19.041
Cumin	Y = 0.9629x + 12.25
Fenugreek	Y = 0.9926x + 2.5
Nut meg & Mace	Y = -2.24x + 69.74
Tamarind	Y = 1.02882x + 1.7
Mint products	Y = 0.8412x + 17.03
Spice oil & oleoresin	Y = -0.4737x + 20.55
Curry product	Y = -0.24x + 18.66

Note: Y = Estimated growth rate, x = Years representing 1, 2, 3 … n

Sources: Calculated from Table 4.7 and 4.8. Data from Spices Board, Cochin.

In the table 4.12, the equations of trend lines of export growth of various items of spices are given. The coefficient of an independent variable 'x' (years) represents the slope of the trend line. High positive value of the coefficient represent more positive steepness in the trend line and low positive value of coefficient represent low positive steepness in the trend line and vice versa. From the table one can understand that the co-efficient of the trend line equations of pepper (0.60), ginger (0.67), cumin (0.96); fenugreek (0.99), tamarind (1.03) and mint products (0.84) are high as compared to other products. So the trends in the growth of export of these products are higher than other products. On the other hand, growth

rate is decreasing for those commodities which have a negative value of coefficient. Nutmeg and mace (-2.29),coriander (-0.59), spice oil and oleoresins (-0.47), chilli (-0.9), cardamom (-0.19) and curry products (-0.24) are the items of spices having a decrease in the growth rate of export. The export growth of other commodities such as turmeric (0.16) and coriander (0.05) are at a slow rate.

4.3.1. Recent Trends in the Growth Rate of Export

The trend analysis of the growth rate of spices exports during the WTO period shows that, the growth of majority of the items is encouraging. The average export growth of eight items is progressive in nature. Yet, the export growth of five items is not encouraging. In this circumstance, it would be highly useful to analyse the recent trends in the growth of various spices exports.

Table 4.13

Trends in the Export Growth of Major Spices during the Period from 2003-04 to 2012-13

Years	Pepper	Cardamom	Chilli	Ginger	Turmeric	Coriander	Cumin	Fenugreek	Nutmeg & Mace	Tamarind	Mint Products	Spice Oil & Oleoresin	Curry products
2003-04	5.69	-11.64	21.47	9.18	17.90	8.81	10.60	1.57	-2.31	2.00	-21.48	6.28	6.27
2004-05	7.36	-6.01	21.08	11.47	17.59	8.95	13.71	4.43	3.13	2.03	-12.77	7.58	8.13
2005-06	9.04	-0.38	20.69	13.77	17.29	9.09	16.83	7.30	8.56	2.06	-4.07	8.87	10.00
2006-07	10.72	5.25	20.30	16.07	16.98	9.23	19.94	10.16	14.00	2.08	4.64	10.17	11.85
2007-08	12.40	10.87	19.90	18.36	16.68	9.37	23.06	13.03	19.44	2.11	13.35	11.47	13.72
2008-09	14.08	16.50	19.51	20.66	16.38	9.50	26.17	15.90	24.87	2.13	22.06	12.76	15.58
2009-10	15.76	22.13	19.12	22.96	16.07	9.64	29.29	18.76	30.31	2.16	30.77	14.06	17.44
2010-11	17.44	27.76	18.73	25.25	15.77	9.78	32.40	21.63	35.74	2.18	39.47	15.35	19.31
2011-12	19.12	33.39	18.33	27.55	15.47	9.92	35.52	24.49	41.18	2.21	48.18	16.65	21.17
2012-13	20.80	39.02	17.94	29.85	15.16	10.05	38.63	27.36	46.62	2.24	56.89	17.95	23.03

Source: Calculated from Table 4.7 and 4.8.
Data from Spice Statistics 2004 and Statistics Section, Spices Board, Cochin 2014

During the period from 2003-04 to 2012-13, the growth rate of eleven items became progressive. Only the trends in the growth rates of chilli and turmeric are negative during this period. The items having the positive trends are more progressive during this period except for coriander and tamarind as compared to over all WTO period. Chilli and tamarind which have a negative trend in growth rate during this period are less regressive. The trend value of chilli declined from 21.47 (2003-04) to 17.94 (2012-13) and turmeric

declined from 17.9 (2003-04) to 15.16 (2012-13). It shows that the trends of these items are not much discouraging in recent years.

Table 4.14

Equations of the Trends of Growth of Major Spices during 2003-04 to 2012-13 (Recent 10 years)

Items	Trend Equations
Pepper	Y = 1.68x + 4
Cardamom (S)	Y = 5.63x – 17.27
Chilli	Y = -0.39x + 21.86
Ginger	Y = 2.29x + 6.88
Turmeric	Y = =-0.3x + 18.2
Coriander	Y = 0.14x + 8.68
Cumin	Y = 3.11x + 7.48
Fenugreek	Y = 2.87x – 1.3
Nut meg & Mace	Y = 5.44x – 7.75
Tamarind	Y = 0.02x + 1.98
Mint products	Y = 8.71x – 30.19
Spice oil & oleoresin	Y = 1.29x + 4.99
Curry product	Y = 1.86x + 4.41

Note: Y = Estimated growth rate and x = Years representing 1, 2, 3, ... n
Sources: Calculated from Table 4.7 and 4.8 and Data from Spices Board.

The trend equation of the growth rate of major spices during the recent ten years (2003-04 to 2012-13) shows that, the increase in the growth rate of export is higher for majority of items (Refer Table 4.14). The coefficients of nine items are greater than one. It is very high for mint products (8.71), cardamom small (5.63) and nutmeg and mace (5.44). The coefficient of trend equation of cumin (3.11), fenugreek (2.87), ginger (2.29), curry products (1.86), pepper (1.68) and spice oils and oleoresins (1.29) is also high during this period.

Comparing the growth trend of pre-WTO period and recent ten years (from2003-04 to 2012-13), one can understand that only the growth trend of pepper, spice oil and oleoresins and curry products are higher in the recent years as compared to pre-WTO period. Even though the growth trends are steeper for mint products and nutmeg and mace in recent years (2003-04 to 2012-13) it cannot be compared with the trend of pre-WTO period because of the non-availability of data.

Table 4.15

Trend in the Growth Rate of Different Spices from 1985-86 to 2012-13.

Items	**Over all Period** (1985-86 to 2012-13)	**WTO period** (1995-96 to 2012-13)	**Pre-WTO period** (1985-86 to 1994-95)	**Recent 10 years** (2003-04 to 2012-13)
Pepper	Negative	Positive	Negative	Positive
Cardamom (S)	Positive	Positive	Positive	Positive
Chilli	Steady (slight decrease)	Negative	Positive	Negative
Ginger	Positive	Positive	Positive	Positive
Turmeric	Positive	Positive	Positive	Negative
Coriander	Positive	Negative	Positive	Positive
Cumin	Positive	Positive	Positive	Positive
Fenugreek	Positive	Positive	Positive	Positive
Nutmeg/ Mace	NA	Negative	NA	Positive
Tamarind	Positive	Positive	Positive	Positive
Mint product	Positive*	Positive	NA	Positive
Oil & Oleoresin	Negative	Negative	Positive	Positive
Curry products	Positive	Negative	Positive	Positive

Note: NA : Data not available , * From 1993-94 to 2012-13.
Source: Summarised from Table 4.11, 4.13 and Appendix II.

Table 4.15 reveals the trend in growth rate of spices exports during the period of study. In order to compare the trend of different periods, separate growth rate trends for pre-WTO period, WTO period and recent ten years are done separately.

From the table 4.15, it is very clear that, items such as ginger, cardamom(S), cumin, fenugreek and tamarind have positive trends in growth during the entire periods. Even though the trend in the growth rate of coriander, nutmeg/mace, spice oil and oleoresin and curry powder are negative during the whole period of WTO region, they are positive in recent ten years (2003-04 to 2012-13).

From the trend equations, it is possible to obtain the projected growth rate for different future years. On the basis of the projected growth rate of well performing commodities during the recent ten years, government could fix the targeted growth rate. Government can also take necessary steps to increasing the growth of low performing commodities.

4.4. Summary and Conclusion

The basic concern of this chapter has been to analyse the data obtained from various official sources for studying the first two objectives of the research work. For the study of the growth of spices exports, both simple and compound growth rates have been used. Average Annual Growth Rate of WTO period (18 years), ten years, five years and Compound Annual Growth Rate of WTO period, ten years and five years of major spices and aggregate export of India have been calculated and compared. The instability in the growth rates has been calculated by using the standard deviation method. Standard deviation in the growth rate of major spices during WTO period and pre-WTO period are calculated for comparison of volatility in the growth rates. Standard deviation of the ten years and five

years growth during the pre-WTO and WTO period are calculated for understanding the instability in each period.

The trends in the growth rates are obtained by using the most popular method of simple regression analysis. Ordinary least square technique has been used to obtain the trend. Projected growth rates of major spices for the year 2015 and 2020 has also been obtained from the trend equations.

From the analysis of the data using the above mentioned tools, the following findings were obtained.

1. During the WTO regime, the Average Annual Growth Rate (AAGR) of five items such as cardamom (S), chilli, cumin, nut meg /mace and mint products are higher than the AAGR of aggregate export of India and five are close to it.

2. During WTO regime, the CAGR of five items such as cardamom (S),cumin, nutmeg & mace, mint products and curry products are higher than the CAGR of aggregate export of India and the growth of four items are close to it.

3. During the pre-WTO period only the AAGR of oil and oleoresins showed a growth rate higher than the growth rate of aggregate export.

4. The CAGR of chilli, coriander, cumin and fenugreek were higher than the CAGR of aggregate export during the pre-WTO period.

5. In the initial ten years of WTO period, the AAGR and CAGR of aggregate exports have been declined. During that period AAGR of chilli, coriander, nutmeg and mace, mint products, spice oil and oleoresins and curry products were higher than

the growth rate of aggregate export, whereas CAGR of coriander, cumin, nutmeg & mace, mint products, oil and oleoresins, and curry products were higher than the growth rate of aggregate exports.

6. During the period of 2001-02 to 2004-05 growth rates of many spices declined and the number of items having the growth rates higher than the growth rates of aggregate export have declined much.

7. Spices exports and growth rates in exports are highly instable during the whole period of study, but volatility decreased during the WTO regime except for ginger.

8. In the recent ten years the instability in the growth rate of cardamom, turmeric, tamarind and mint products has increased as compared with the first ten years of WTO period.

9. During the WTO period, items having a comparative stable growth are turmeric, coriander, tamarind, spice oil and oleoresins and curry products.

10. In recent years the instability in the export growth of some items such as pepper, cardamom(S), turmeric, coriander, tamarind, mint products and spice oil and oleoresin have been increased.

11. During the WTO period, growth rate of eight items have positive trend, they are pepper, cardamom (S), ginger, turmeric, cumin, fenugreek, tamarind and mint products.

12. In recent years (2003-04 to 2012-13), the number of items of spices having the positive trend in growth rate increased to

eleven. Only the growth rate of chilli and turmeric have negative trend in growth rate.

To sum up, from the above analysis one can understand that, the growths of exports of many items of spices during the WTO period are more encouraging. Even though the instability in the growth rate of export is low during the WTO regime, comparing with the instability of aggregate export one can understand that, spices export growth is more unstable in nature and instability is increasing in recent years. Positive trends in the growth rate of many spices are encouraging. Unlike many of the other agricultural products, spices export is affected much by many factors which not only affect the domestic demand at supply level but also the international demand.

Chapter V

COMPOSITION AND DIRECTION OF INDIAN SPICES EXPORTS DURING THE WTO PERIOD

INTRODUCTION

This chapter provides answers to the research question concerning the changes in the composition and direction of Indian spices export during the WTO regime. This chapter is related to the third objective of the research work, i.e.

To examine the changes in the composition and direction of Indian spices export during the WTO regime.

Changes in the commodity composition of the exports and export destinations are the important determinants of export performance like the structural changes for the economic growth. A country is able to earn more foreign exchange and can attain more export growth by exporting more value added products and high valued commodities instead of products in the raw form and bulky products. Likewise, finding new market destinations, a country can attain more stable and growing export. Foreign market access is considered as an important determinant of export performance. For the calculation of export performance of India's major spices in respect of direction and composition, arithmetic such as percentages and ratios is used. Data are presented using statistical tools like pie diagram, bar diagram and line diagrams.

The analysis of this chapter is presented in two sections viz. Composition of Indian spices exports and direction of spices exports during the WTO regime.

SECTION A

5.1. COMPOSITION OF INDIA'S SPICES EXPORTS DURING THE WTO REGIME

India exports almost all major spices which are traded in the world market. Country's spices export basket consists of around 50 spices in whole form and more than 80 products in value added form. However few spices and the value added form constitute a major segment of the country's total export earnings and only 22 spices are grown in India as a commercial basis. Out of the 22 spices which are commercially cultivated in India, only ten items contributed around 90 percent of export earnings. The shares of these items are different in different periods.

Table 5.1

Composition of Major Spices Exports of India during the WTO Regime (Percentage share of value of each item to the total spices exports value)

Items	1995-96	2000-01	2010-11	2012-13
Pepper	24.4	20.77	5.6	5.27
Cardamom (s)	1.61	4.62	1.93	1.75
Chilli	24.29	12.53	22.45	19.65
Ginger	4.84	1.46	1.77	1.54
Turmeric	5.74	6.3	10.27	4.58
Coriander	2.79	2.04	2.44	1.67
cumin	2.16	9.73	5.79	9.52
Fenugreek	2.32	1.08	0.96	0.87
Nutmeg &Mace	0.084	0.89	1.43	1.86
Tamarind	2.57	1.23	1.17	0.89
Mint Products	5.9	8.45	24.8	32.53
Oil and oleoresin	14.3	20.35	13.31	12.87
Curry Products	2.18	2.35	3.08	2.27
Others	6.79	8.23	5.00	4.73

Sources: Calculated from Spice Statistics 1998, 2004 and Statistics Division of Spices Board, Cochin, 2014

The table 5.1 indicates the percentage share of each item of spices in the total spices export from 1995-96 to 2012-13 and the changes in the composition during the WTO period. From the table, it is clear that, the share of pepper and chilli together in the total spices export was about 50 percentages in the year 1955-96. But during 2012-13, the share of pepper declined much to 5.27 percent from 24.4 percent of 1995-96. The decrease was sharp during this period. But decrease in the share of chilli was not substantial during this period. On the other hand, the shares of some items of spices have increased much. The share of mint products in the total export of spices has increased to a considerable extent in the last 18 years. Its share in the spices export was only 5.9 percent during 1995-96, that increased to 32.53 percent during 2012-13. During 1960- 61 the share of pepper export in the total spices exports was 52.82 percent, it continued around 40 percent till WTO came into being. It was 38.16 percent in the year 1994-95.

Table 5.2

Ranking of Major Items of Spices as the Basis of Export Share

Items	1995-96	2000-01	2010-11	2012-13
Pepper	1	1	6	5
Cardamom (s)	12	7	9	9
Chili	2	3	2	2
Ginger	6	10	10	11
Turmeric	5	6	4	6
Coriander	7	9	8	10
Cumin	11	4	5	4
Fenugreek	9	12	13	13
Nutmeg&Mace	13	13	11	8
Tamarind	8	11	12	12
Mint Products	4	5	1	1
Spice Oil and oleoresin	3	2	3	3
Curry Products	10	8	7	7

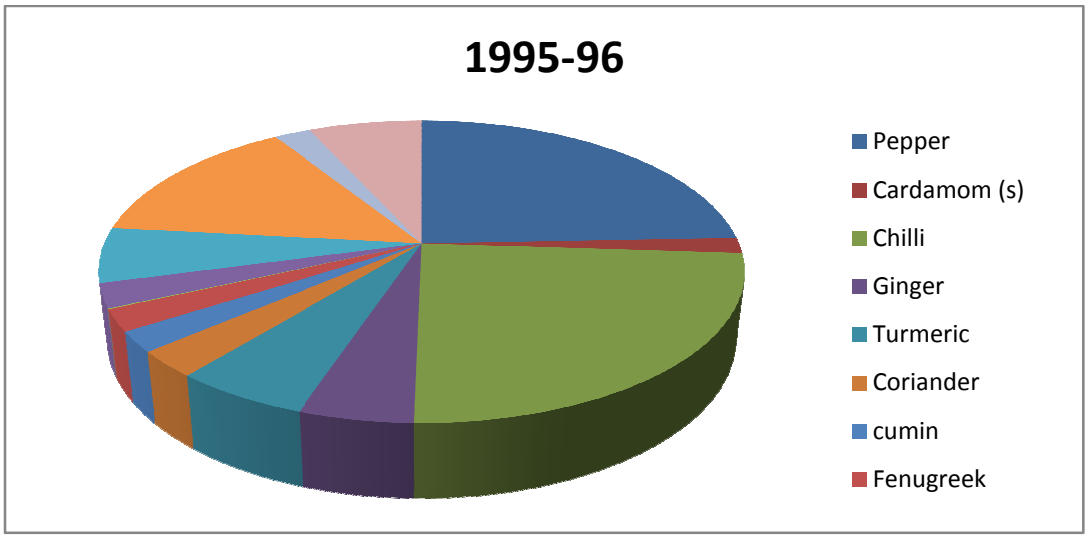
Source: Calculated form Table 5.1, Data from Spices Board ,Cochin

The table 5.2 reveals the rank of each major item of spices in different years calculated as the basis of export share. At the time WTO came into being, pepper was the major item of spice in the export basket of spices ranking first. But now its share has decreased and mint products are ranked first in the export basket. Even though the market share of chilli and spice oil and oleoresins, decreased during the WTO period, they retained the same rank.

The share of some of India's traditional items of spices such as pepper, ginger, tamarind and fenugreek have declined much. The share of these items together was 34.13 percent during 1995-96; it dropped down to 8.57 percent in 2012-13. The share of some new items such as nutmeg/ mace, and mint products have increased during the WTO period. The share and rank of valued added products such as curry products, mint products and oil and oleoresins together have more than doubled. Its share was 22.38 percent during 1995-96 and it increased to 47.67 percent during 2012-13.

Figure 5.1

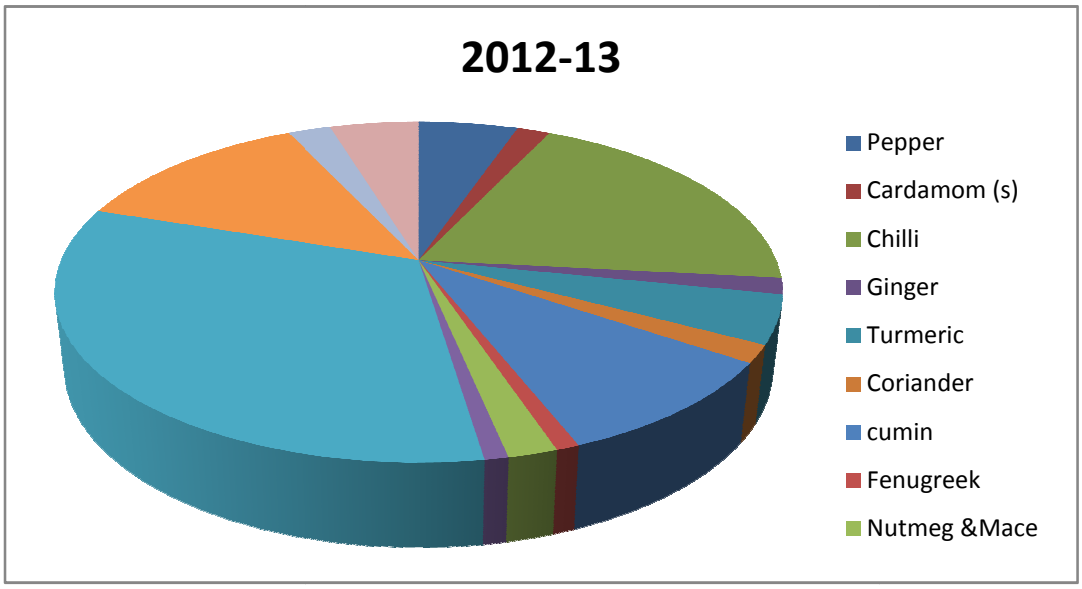
Composition of Indian Spices Exports during 1995-96 (Percentage of Export Value)



Source: Table 5.1

Figure 5.2

Composition of Indian Spices Exports during 2012-13
(Percentage of Exported Value)



Source: Table 5.1

Figures 5.1 and 5.2 illustrate the contribution made by each items of spice to the total spices export earnings during the year 1995- 96 and 2012-13. It clearly shows the changes in the composition of different items from 1995-96 to 2012-13.

The analysis of the composition of spices exports during the WTO period revealed certain changes in its composition over time. Overall figure depicts a structural shift in India's spices export away from some traditional items such as pepper, ginger, tamarind and fenugreek towards more value added products such as curry products, mint products and to some new exportable items such as nutmeg/mace and cumin. Not much changes in the share of the traditional items such as cardamom (s) and turmeric.

SECTION B

5.2. DIRECTION OF INDIA'S SPICES EXPORTS DURING THE WTO PERIOD

At present India exports one or the other spices or spice products to almost all countries of the world. India exports major spices to more than one hundred countries and was very few during the pre-WTO period. Even though India is exporting spices to large number of countries, less than ten countries constitute the major buyers of our spices exports and they account more than half of our exports. The important destination for Indian spices exports are USA, UK, Canada, Japan, South Africa, Germany and West Asian countries like UAE, Saudi Arabia; East Asian Countries like Malaysia, Singapore, Indonesia; Neighbouring Countries like Pakistan, Bangladesh, Sri Lanka , etc.

5.2.1. Export Destination of Major Spices

PEPPER

Pepper, the most traditional spice of India has exported to 90 countries in the year 2012. At the beginning of WTO era (1995), India has exported pepper only to 50 countries. USA continues to be the largest importer of Indian pepper since 1995.

Table 5.3

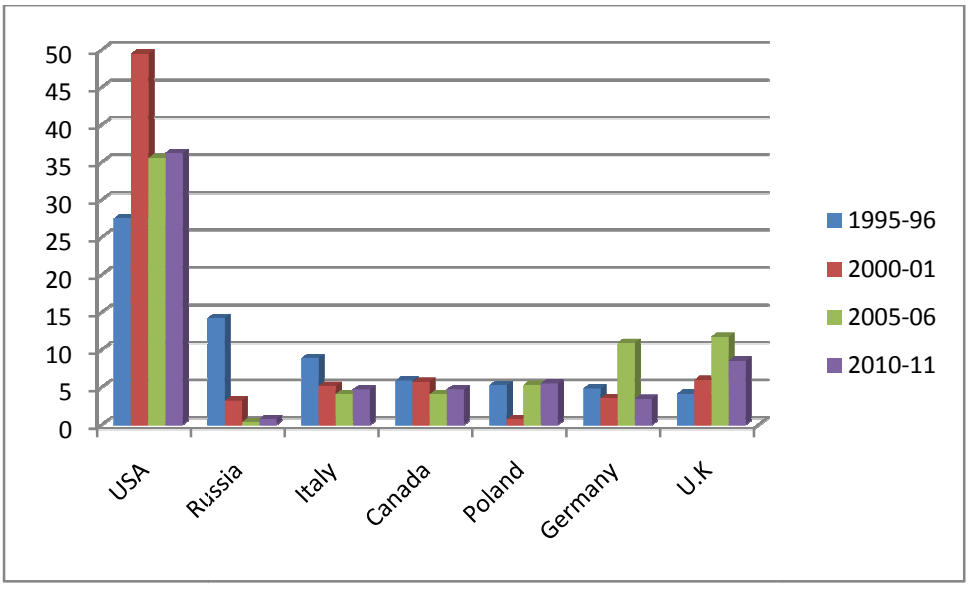
Share of India's Pepper Exports to Top Seven Destination from 1995-96 to 2010-11 (figure are in percentage of export value)

Countries	1995-96	2000-01	2005-06	2010-11
USA	27.55	49.47	35.56	36.23
Russia	14.25	3.24	0.37	0.73
Italy	8.89	5.18	4.09	4.71
Canada	5.9	5.75	4.09	4.71
Poland	5.29	0.75	5.31	5.51
Germany	4.83	3.57	10.93	3.48
U.K	4.13	6.00	11.72	8.54

Source: Calculated form Table 3.30
Source: Spices Board, Cochin 2014

Figure 5.3

India's Pepper Exports of Top Seven Destination from 1995-96 to 2010-11



Source: Table 5.3

The table and figure 5.3 shows that, the share of export to USA and UK have increased from 1995-96 to 2010-11. The share of

export to Italy, Germany and Russia, started decreasing during the WTO period. The shares of these countries were fluctuating since 1995-96. Canada has more or less stable export share during this period. The share of rest of countries has increased from 29.16 percent to 39.06 percent mainly due to the increase in the share of export to Australia, Japan and Sweden.

CARDAMOM (SMALL)

The number of export destinations of Indian cardamom (s) also increased much during the WTO period. In the year 1995 India exported cardamom to only 29 countries, which has increased to 87 countries in the year 2012. Saudi Arabia is the largest importer of Indian cardamom.

Table 5.4

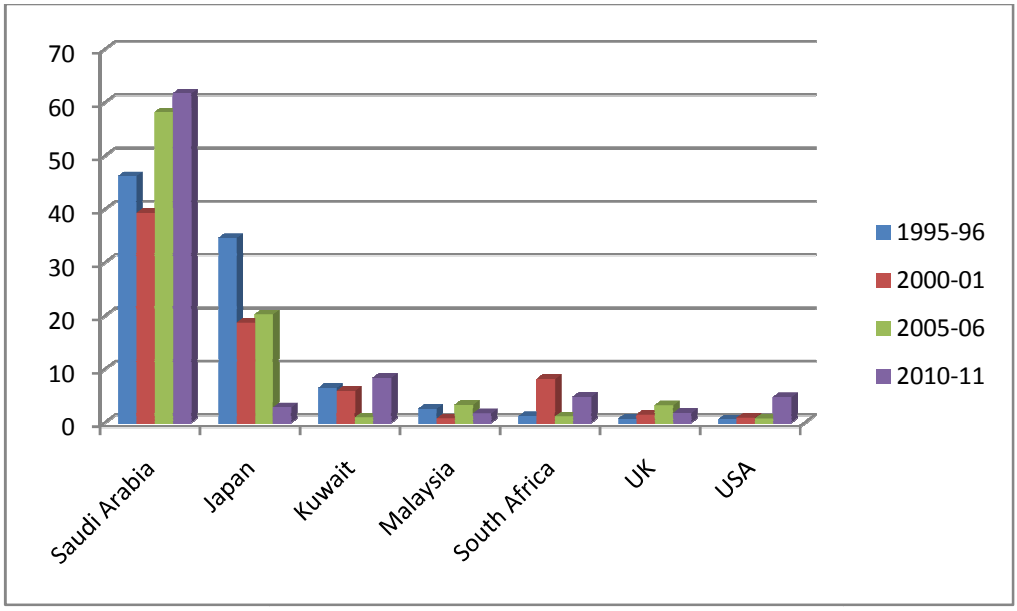
Share of India's Cardamom Export to top Seven Destinations from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
Saudi Arabia	46.19	39.32	58.17	61.71
Japan	34.57	18.74	20.27	2.85
Kuwait	6.46	5.98	0.94	8.39
Malaysia	2.56	0.76	3.35	1.73
South Africa	1.21	8.15	1.13	4.86
UK	0.72	1.51	3.23	1.80
USA	0.62	0.91	0.75	4.75

Source: Calculated from Table 3.31, Source: Spices Board, 2014

Figure 5.4

India's Cardamom(s) Exports to Top Seven Destinations from 1995-96 to 2010 -11



Source: Table 5.4

Table and figure 5.4 reveal that the share of export to Saudi Arabia, South Africa, Kuwait, UK and USA has increased during the period. The share of export to Japan and Malaysia has decreased, and the decrease of the share of export to Japan was very sharp from 34.57 percent to 2.85 percent. During this period, the share of the rest of world has been increased from 7.67 percent to 13.91 percent. Table and figure 5.4 also revealed that during the study period, there is no stability in the share of export to different countries.

CHILLI (CAPSICUM)

India exports Chilli to over 100 countries. In the year 1995 India had exported chillies to 58 countries and it increased to 109 in the year 2012. In 1995, UAE was the major export destination of

Indian chillies, now it has shifted to Malaysia with 23.21 percent of share (2010-11).

Table 5.5

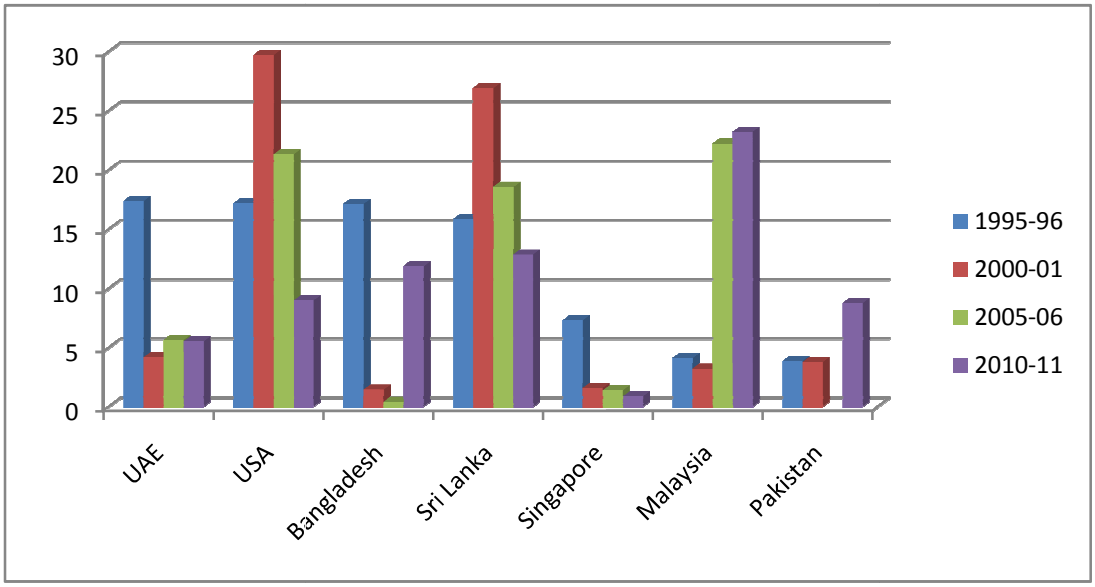
Share of India's Chilli Exports to Top Seven Destination from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
UAE	17.38	4.17	5.64	5.52
USA	17.18	29.70	21.32	8.99
Bangladesh	17.13	1.45	0.41	11.86
Sri Lanka	15.84	26.91	18.57	12.85
Singapore	7.3	1.58	1.38	0.88
Malaysia	4.12	3.21	22.22	23.21
Pakistan	3.85	3.78	NA	8.74

Note: NA: Data not Available
Source: Calculated form Table 3.32, Data from Spices Board, 2014

Figure 5.5

India's Chilli Export to Top Seven Destinations from 1995-96 to 2010 -11



Source: Table 5.5

Table and figure 5.5 shows that out of seven destinations of India's chilli exports, the share of Pakistan and Malaysia has increased during the WTO regime. There is a sharp increase in the share of export to Malaysia from 4.12 percent (1995-96) to 23.21 percent (2010-11). The share of Sri Lanka, USA, UAE, Bangladesh and Singapore has decreased during this period. The decrease in the share of export to UAE and Singapore was substantial. During this period the export to rest of world has increased from 17.2 percent (1995-96) to 27.9 percent (2010 -11). The share of Mexico and Indonesia has increased to 4.97 percent and 3.93 percent respectively during 2010-11. They were negligible during the initial year of WTO regime.

GINGER

Ginger was one of the traditional items of export of India. India now exports ginger to more than one hundred countries. In the year 1995 India has exported ginger only to 31 countries, which increased to 100 countries in the year 2012. The major destinations of India's ginger export are Saudi Arabia, USA, Morocco and Bangladesh. At the beginning of WTO period the major export destinations were Pakistan, Saudi Arabia, Bangladesh and Yemen.

Table 5.6

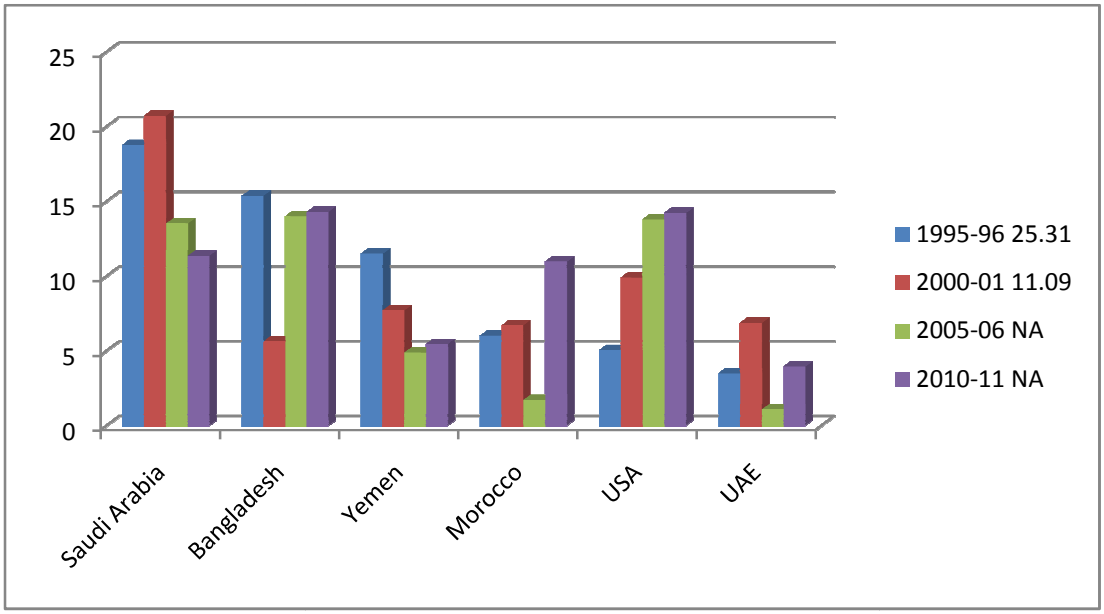
Share of India's Ginger Exports to Top Seven Destination from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
Pakistan	25.31	11.09	NA	NA
Saudi Arabia	18.78	20.74	13.53	11.36
Bangladesh	15.38	5.64	14.00	14.30
Yemen	11.51	7.71	4.89	5.45
Morocco	6.02	6.71	1.72	10.98
USA	5.05	9.9	13.8	14.23
UAE	3.5	6.87	1.09	3.95

Note: NA: Not Available
Source: Calculated from Table 3.33 , Data from Spices Board,2014

Figure 5.6

India's Ginger Export to Top Seven Destinations from 1995-96 to 2010 - 11



Source: Table 5.6

From the table and Figure 5.6 one can understand that the percentage shares of ginger exports to UAE, USA and Morocco have increased during the WTO period. The share of UAE and Bangladesh has more or less stable. In the initial year of WTO period, share of UK and Netherlands was negligible, then it increased to a remarkable extend.

TURMERIC

India is the major supplier of turmeric in the world market. During the last few years India exported turmeric to more than hundred countries. In the year 2012 India has exported it to 119 countries against 64 countries in the year 1995. Now UAE is the major importer with 15.91 percent (2012) of share of export. In the initial year of WTO period, USA was the major importer with a share of 14.82 percent of India's export. In the year 2012 the major export destinations of Indian turmeric are UAE, Malaysia, Japan, Iran and USA.

Table 5.7

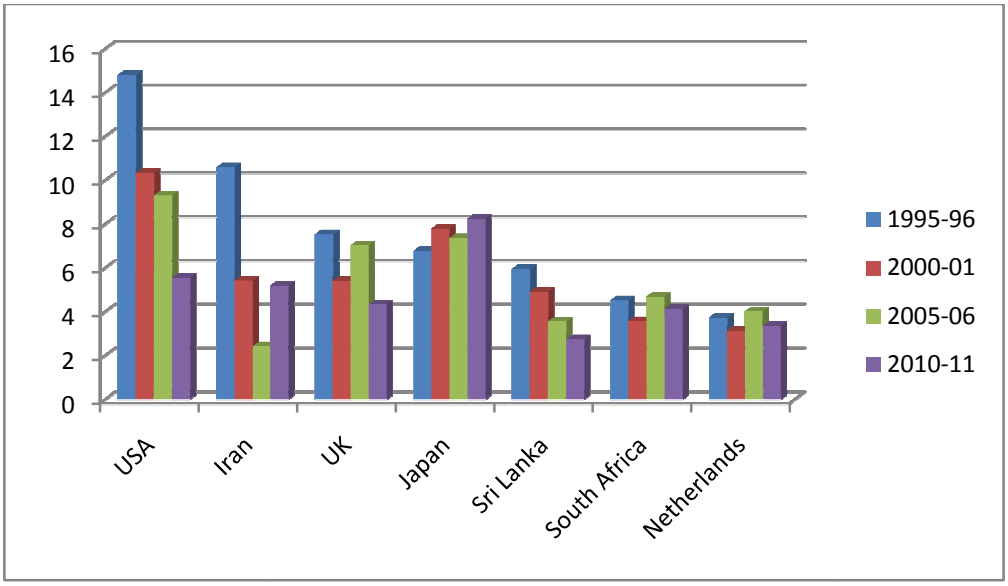
Share of India's Turmeric Exports to Top Seven Destinations from 1995- 96 to 2010-11
(Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
USA	14.82	10.34	9.32	5.57
Iran	10.61	5.43	2.44	5.2
UK	7.54	5.42	7.04	4.35
Japan	6.78	7.80	7.37	8.25
Sri Lanka	5.96	4.92	3.57	2.75
South Africa	4.53	3.58	4.69	4.14
Netherlands	3.74	3.13	4.02	3.36

Source: Calculated from Table 3.34, Data from Spices Board Cochin (2014)

Figure. 5.7

India's Turmeric Export to Top Seven Countries during the WTO period



Source: Table 5.7

The table and figure 5.7 reveal that, the export shares of USA, UK, Sri Lanka and Iran have decreased during the WTO period while the share of Japan has increased. South Africa and Netherlands have kept a more or less stable share from 1995-96 to 2010-11. During 1995-96 the export to rest of world were only 47 percent of the total turmeric exports, it increased to 66 percent during 2010 - 11. It is because of the diversification of markets to new countries. UAE with market share of 15.91 percent and Malaysia with a share of 9.53 percent are the new major destinations for Indian turmeric. Their shares were negligible during 1995-96.

CORIANDER

India is the largest exporter of coriander by exporting to about one hundred countries of the world. The number of export destinations at the beginning of WTO period was only 38 and it has increased to 92 in the year 2012. Malaysia continues to be the largest importer of Indian coriander during the whole period of WTO. There exists much fluctuation in the share of export to major destinations.

Table 5.8

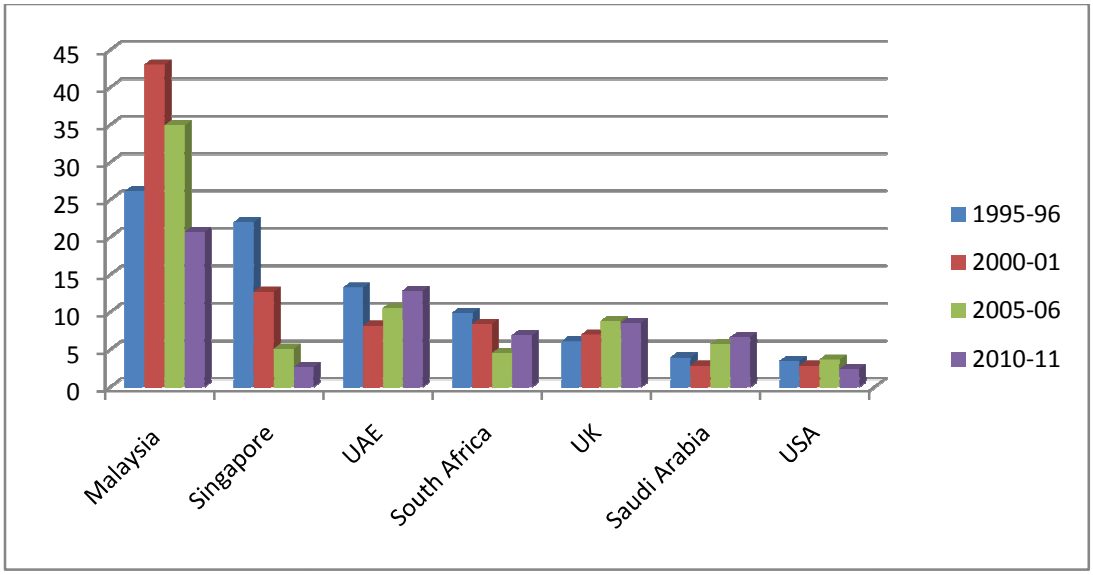
Share of India's Coriander Exports to Top Seven Destination from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
Malaysia	26.11	43.05	34.95	20.7
Singapore	22.01	12.71	5.11	2.70
UAE	13.28	8.2	10.52	12.85
South Africa	9.91	8.41	4.55	6.90
UK	6.1	6.99	8.84	8.56
Saudi Arabia	3.94	2.85	5.76	6.63
USA	3.49	2.85	3.66	2.40

Source: Calculated form Table 3.35, data from Spices Board, 2014

Figure 5.8

India's Coriander Export to Top Seven Countries during WTO regime



Source: Table No.5.8

The table and Figure 5.8 reveals that the share of export to Saudi Arabia and UK were increasing over the years and those of UAE, Malaysia, Singapore, South Africa, and USA were decreasing during the WTO period. The decrease in the share of Singapore was very sharp (from 22.01 percent to 2.7 percent) during this period. Pakistan and Nepal are the new emerging markets for coriander in recent years.

CUMIN

India is the world biggest producer consumer and exporter of cumin. In the year 2012 India has exported cumin to 122 countries of the world. It was only 40 during 1995. Unlike the other spices the direction of cumin export has changed much.

Table 5.9

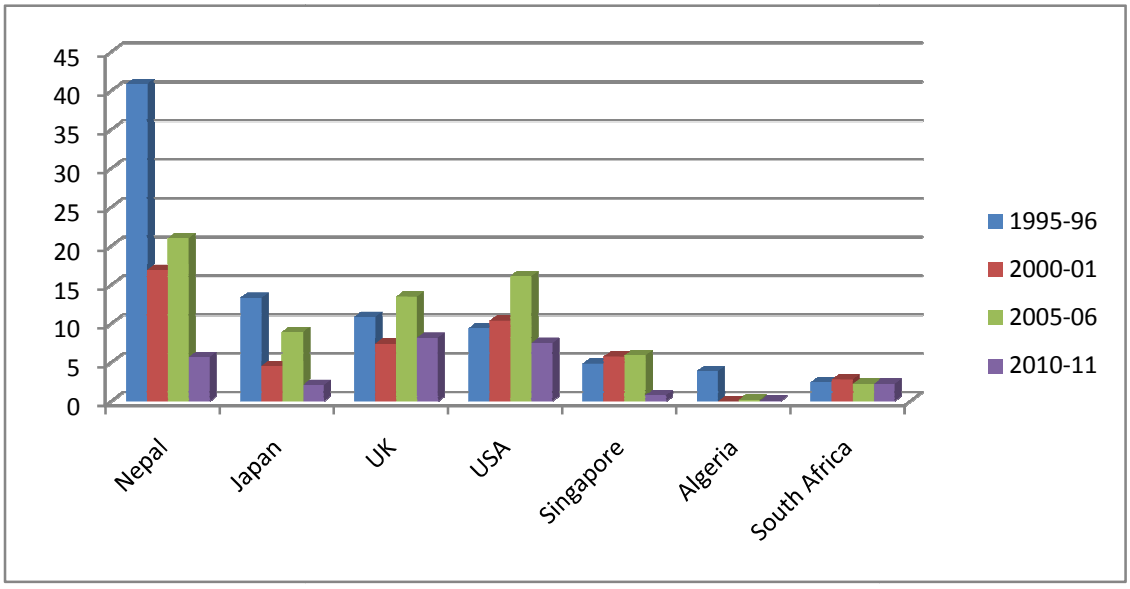
Share of India's Cumin Exports to Top Seven Destination from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
Nepal	40.87	16.91	21.01	5.7
Japan	13.34	4.55	8.93	2.1
UK	10.89	7.43	13.48	8.19
USA	9.4	10.38	16.11	7.52
Singapore	4.86	5.77	5.93	0.77
Algeria	3.87	0.003	0.2	0.07
South Africa	2.47	2.81	2.27	2.261

Source: Calculated from Table 3.36, Data from Spices Board, 2014

Figure 5.9

India's Cumin Export to Top Seven Countries during WTO Period



Source: Table 5.9

From the table and figure 5.9 one can understand that, the share of export to all major destinations have decreased much. In

the initial year of WTO period (1995-96) more than 85percent of the export were to the seven countries, it diverted to other countries and their shares decreased to 27percent during 2010-11. Only the share of South Africa remained more or less stable. During 1995- 96 more than 40percent of the export of cumin was to Nepal. It has decreased to 5.7percent during 2010-11. New markets of cumin are Brazil (7.35percent), UAE (5.43percent), and Malaysia (5.2percent) during 2010-11.

FENUGREEK

India is the major fenugreek exporting country of the world and export fenugreek to many countries in Asia, Africa, Europe and America. But the share of exports to the countries changed during the WTO period.

Table 5.10

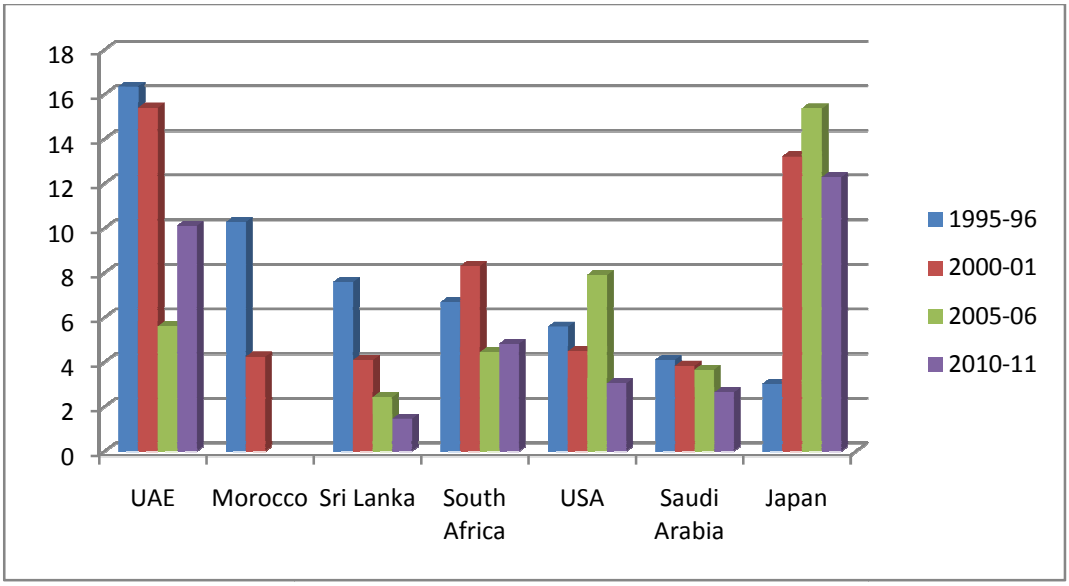
Share of India's Fenugreek Exports to Top Seven Destination from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
UAE	16.35	15.41	5.6	10.11
Morocco	10.29	4.25	NA	NA
Sri Lanka	7.59	4.1	2.43	1.47
South Africa	6.69	8.3	4.44	4.82
USA	5.59	4.49	7.9	3.05
Saudi Arabia	4.1	3.84	3.66	2.65
Japan	3.03	13.22	15.37	12.29

NA: Not Available
Source: Calculated from Table 3.37. Data from Spices Board, 2014

Figure 5.10

India's Fenugreek Export to top seven countries during WTO period



Source: Table No.5.10

From the table and figure 5.10 one can understand that during the WTO period only the share of export to Japan has increased. The share of exports to other countries has decreased much. At the same time, Yemen emerged as the 2nd largest market for Indian fenugreek with a share of 9.42 percent (2010-11) and UK with 4.21 percent (2010-11). Their shares during 1995-96 were negligible.

NUTMEG AND MACE

Nutmeg and mace are the two items of the same spice which India started exporting recently in a large scale basis. Until 2000 their shares in India's export were negligible. In the year 1995 India exported these commodities only to three countries. Now the number of export destinations has increased to above seventy.

Table 5.11

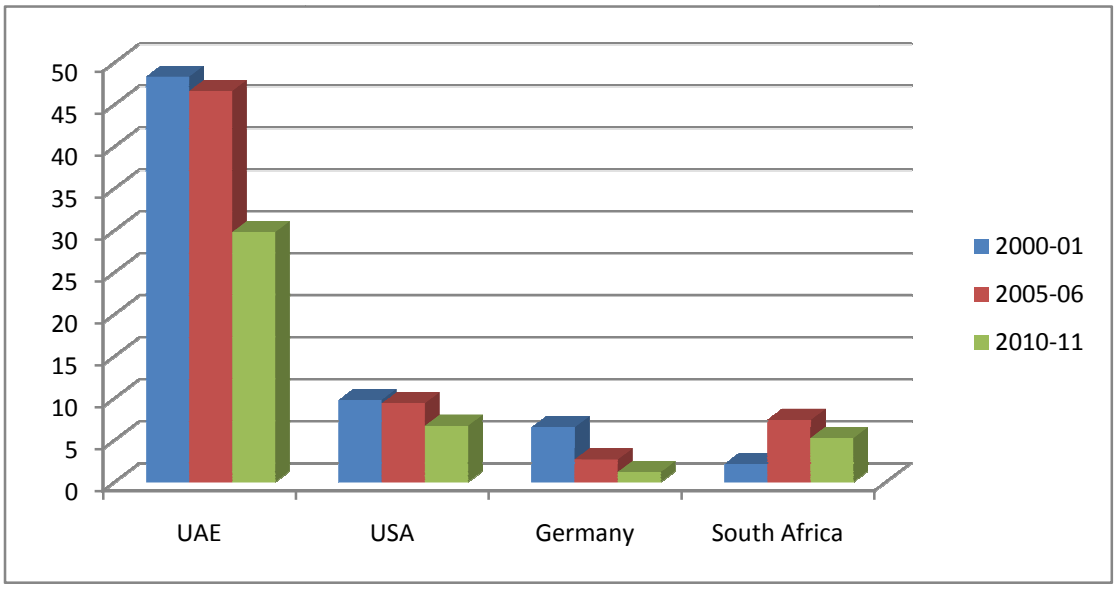
Share of India's Nutmeg & Mace Exports to Top Four Countries from 2000-01 to 2010 -11 (Figures are in Percentage of Export Value)

Countries	2000-01	2005-06	2010-11
UAE	48.33	46.62	29.8
USA	9.82	9.4	6.73
Germany	6.57	2.71	1.22
South Africa	2.18	7.44	5.24

Source: Calculated from Table 3.38. Data from Spices Board , 2014

Figure. 5.11

India's Export of Nutmeg & Mace to Top Seven Countries During WTO period



Source: Table No.5.11

From the table and figure 5.11 one can understand that only the share of South Africa has increased during this period, and the share of other countries have decreased much. But still the UAE is the major export destination with 29.8 percent share (2010-11) followed by Singapore 6.87 percent. The share of Singapore was very negligible during 2000-01.

TAMARIND

Tamarind is one of the major spices of India its share has come down in the export basket during the WTO period. Since the substantial decrease in the share of Tamarind, its export destination data are not available after 2000-01.

Table 5.12

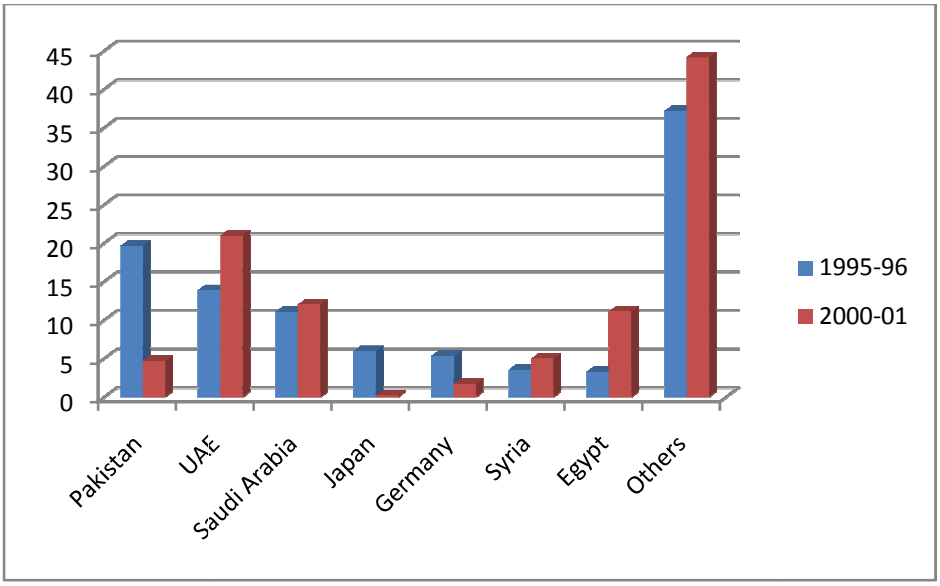
Share of India's Tamarind Export to Top Seven Destination from 1995- 96 to 2010-01.(Figures are in Percentage of Export Value)

Countries	1995-96	2000-01
Pakistan	19.64	4.73
UAE	13.9	20.97
Saudi Arabia	11.1	12.05
Japan	5.97	0.23
Germany	5.33	1.73
Syria	3.57	5.01
Egypt	3.31	11.14
Others	37.18	44.14

Source: Calculated from Table 3.39. Data from Spices Board, 2014

Figure 5.12

Export of India's Tamarind to Top Seven Countries during WTO period



Source: Table No.5.12

From the table and figure 5.12 one can understand that within the short period of time, the export destinations for tamarind have been changed much. The shares of export to Egypt, Syria, Saudi Arabia and UAE have increased while shares of export to Pakistan, Germany and Japan have decreased during this period. USA and UK became new market destination with a share of 10.54 percent and 7.25 percent respectively. The export shares of Pakistan and Japan have decreased sharply.

5.2.2. EXPORT DESTINATION OF SPICES PRODUCTS

Table 5.13

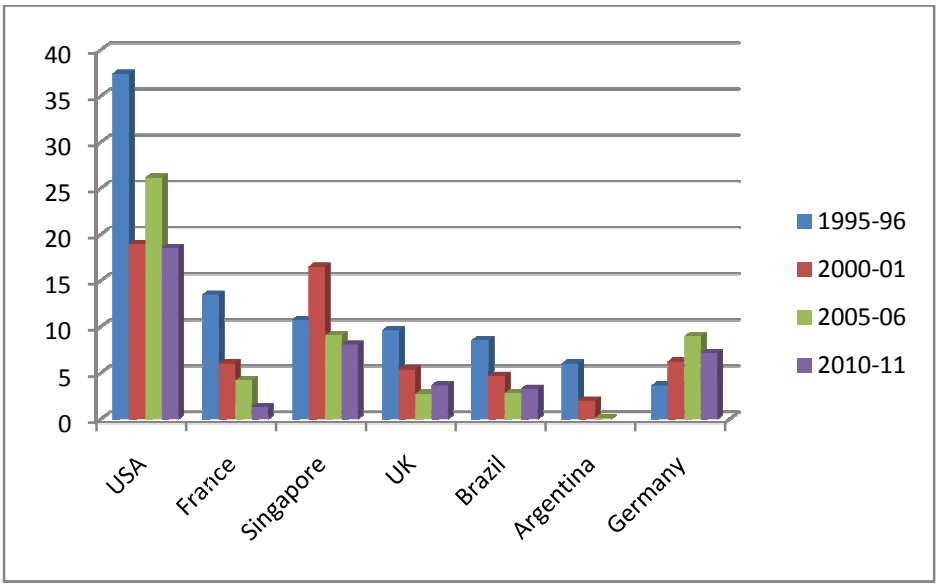
Share of India's Mint Products Export to Top Seven Destination from 1995- 96 to 2010-11
(Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
USA	37.42	18.96	26.16	18.53
France	13.47	6.01	4.2	1.31
Singapore	10.74	16.5	9.07	8.07
UK	9.6	5.35	2.74	3.63
Brazil	8.56	4.69	2.79	3.27
Argentina	6.01	1.99	0.1	NA
Germany	3.63	6.22	8.96	7.12

NA: Not Available
Source: Calculated from Table 3.40. Data from Spices Board, 2014

Figure 5.13

India's Mint Product Export to Top Seven Countries during WTO Period



Source: Table No. 5.13

The table and figure 5.13 reveals that only the share of export to Germany has increased during the WTO period. The share of all other major export destinations has declined. One of the peculiarities of the direction change of mint products export is that China became the major importer of Indian mint products with 32.15 percent during 2010-11; its share was very negligible in the year 1995. Japan has also become an important destination for Indian mint products with a share of 3.19 percent.

Table 5.14

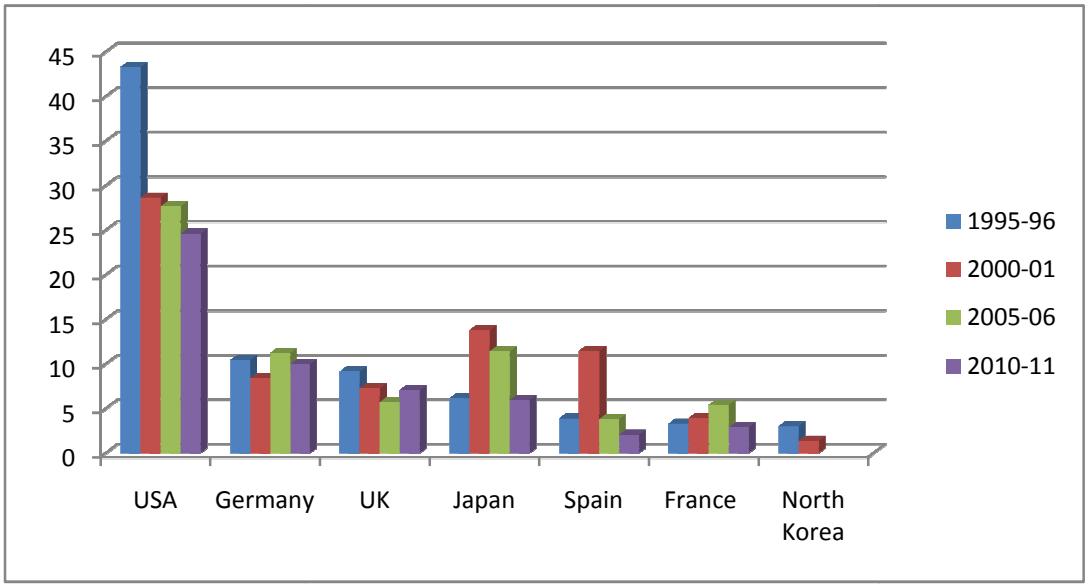
Share of India's Oil and Oleoresin Exports to Top Seven Destination from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
USA	43.28	28.65	27.68	24.62
Germany	10.41	8.41	11.2	9.99
UK	9.16	7.26	5.7	7.06
Japan	6.13	13.77	11.41	5.93
Spain	3.88	11.47	3.8	2.07
France	3.31	3.93	5.42	2.88
North Korea	3.00	1.37	NA	NA

NA: Not Available
Source: Calculated from Table 3.42. Data from Spices Board, 2014

Figure 5.14

India's Oil and Oleoresin Export to Top Seven Countries during WTO Period



Source: Table No.5.14

From the table and figure 5.14, it is clear that, the share of export to all the countries mentioned have decreased during the WTO period. But France, Germany and Japan have shown more or less stability in share in the whole period. Still more than 50 percent of our export of spice oils and oleoresins are to top seven destination of 1995-96. Now South Korea has also become an important destination with 4.03 percent share in 2010-11.

Table 5.15

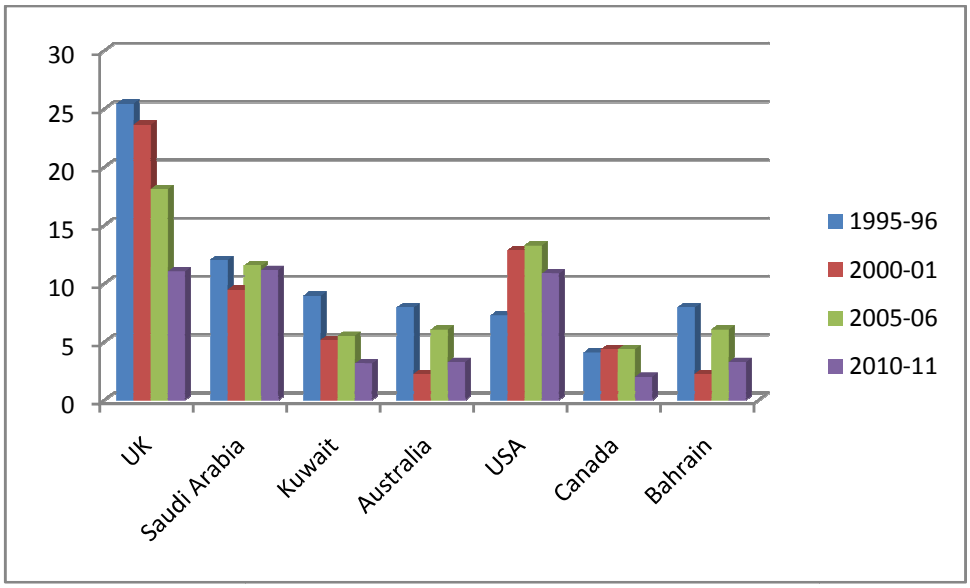
Share of India's Curry Products Exports to top Seven Destinations from 1995- 96 to 2010-11 (Figures are in Percentage of Export Value)

Countries	1995-96	2000-01	2005-06	2010-11
UK	25.45	23.65	18.12	11.06
Saudi Arabia	12.02	9.49	11.56	11.16
Kuwait	8.96	5.17	5.51	3.15
Australia	7.96	2.25	6.07	3.28
USA	7.27	12.87	13.27	10.87
Canada	4.1	4.36	4.37	2.00
Bahrain	7.96	2.25	6.07	3.28

Source: Calculated from Table 3.40. Data from Spices Board, 2014

Figure 5.15

India's Curry Products Export to Top Seven Countries during the WTO Period



Source: Table No.5.15

Table and figure 5.15 shows that, the share of export to UK, Kuwait, Canada, Bahrain and Australia have declined and only the share of exports to USA has increased during the WTO period. Saudi Arabia has been showing more or less stability in the export share and UAE has emerged as a new destination for curry products with a share of 10.72 percent.

Table 5.16

Changes in the Export Destination of Spices and Spice Products during WTO Regime (from 1995-96 to 2010-11)

Items	Countries which have Increased share of market	Countries which have Decreased share of market	Countries having more or less stable share	More unstable markets	New Destinations
Pepper	USA, UK	Russia, Italy, Poland, Germany	Canada	Poland, Germany	Australia, Japan, Sweden
Cardamom (S)	Saudi Arabia, South Africa, UK, USA	Japan, Malaysia		Japan, Kuwait, South Africa	-
Chilli	Malaysia Pakistan	UAE, USA, Bangladesh, Sri Lanka, Singapore	-	USA, Bangladesh	Mexico, Indonesia
Ginger	Morocco USA, UAE	Pakistan, Saudi Arabia, Yemen	Bangladesh	Morocco, UAE	UK, Netherlands
Turmeric	Japan	USA, Iran, UK, Sri Lanka	South Africa, Netherlands	-	Bangladesh, UAE, Malaysia
Coriander	UK, Saudi Arabia	Malaysia, Singapore, South Africa, USA	UAE	-	Nepal, Pakistan
Cumin		Nepal, Japan, UK, USA, Singapore, Algeria	South Africa	Nepal, Japan, UK, Singapore	Brazil, Malaysia, UAE

Items	Countries which have Increased share of market	Countries which have Decreased share of market	Countries having more or less stable share	More unstable markets	New Destinations
Fenugreek	Japan	UAE, Morocco, Sri Lanka, South Africa, USA, Saudi Arabia	South Africa	UAE	UK, Yemen
Nut meg & Mace	South Africa	UAE, USA, Germany	USA		Singapore
Tamarind	UAE Saudi Arabia Syria Egypt	Pakistan Japan Germany	Saudi Arabia		USA, UK
Mint Products	Germany	USA, France, Singapore, UK, Brazil, Argentina	Singapore	USA, UK	China, Japan
Spice oil & Oleoresin		USA, UK, Spain, North Korea	Germany, France	Japan, Spain	South Korea
Curry products	USA	UK, Kuwait, Australia, Canada, Bahrain	Soudi Arabia	Australia Bahrain	UAE

Sources: Obtained from Table 5.3 to 5.15

5.3. SUMMARY AND CONCLUSION

This chapter is mainly concerned with the changes in the export compositions and directions of India's spices and its products during the WTO regime. The analysis is related with the second objective of the study. For the study of changes in the export compositions and directions of spices, simple mathematical and statistical tools were used.

From the analysis of data, the following findings were obtained.

1. Even though India's export basket consists of around fifty spices and more than eighty spice products (value added spices) ten items contributed around 90 percentages of export earnings.

2. During the WTO regime (1995-96 to 2012-13) the composition of spices export has changed .The combined share of India's traditional items of spices such as pepper ,ginger, tamarind and fenugreek has declined much from 34.16percentage to 9.46 percentage. On the other hand, the share of some new items of Indian exports such as nutmeg/mace, and mint products have increased from 5.98 percentages to 32.07 percentage.

3. During the WTO period, the share of pepper has declined sharply to 6.02 percentages from 24.4 percentages. The share of mint products has sharply increased from 5.9 percentages to 29.73 percentages.

4. The shares and ranks of value added spices such as curry products, mint products and oils and oleoresins have about doubled. It was only 22.38 percentages during 1995-96 and it increased to 44.15 percentages during 2012-13.

5. The share of export to the countries other than major export destinations have increased for all items of spices during the WTO period. This increase is substantial for cumin (14.3 percentage to 73.04 percentage), mint products (10.58 percentage to 58.07 percentage) and spice oils and oleoresins (20.83 percentages to 47.45 percentages).

6. Even though the shares of export to USA and UK have decreased for some spices, they have gained in some other

spices and continued to be the largest markets for Indian spices.

7. There exists wide instability in the share of exports to majority of countries.

8. South Africa and Saudi Arabia are more stable markets for some major Indian spices.

9. During the WTO regime, the increase in market shares of UK, UAE, Japan and Malaysia are more than the decrease in the market share of spices.

To conclude, during the WTO regime, the composition and direction of Indian spices export have changed. The share of traditional export items have declined and the share of value added spices and new items of exports have increased. Export markets for many items became instable; the number of export destinations has increased. The shares of traditional export destinations have declined and share of new market destinations have increased during the WTO regime.

Chapter VI

PERFORMANCE OF INDIAN SPICES EXPORTS A REVEALED COMPARATIVE ADVANTAGE (RCA), AND ELASTICITY OF VALUE WITH RESPECT TO QUANTITY (EV) APPROACH

Introduction

In this chapter the answer to the key research question i.e. the export performance of major spices and spice products during the WTO regime in comparison with the spices export of other countries is provided. The analysis provided in this chapter gives answers for the two most important research objectives such as:

- ***To find out the export performance of various spices and spice products during the WTO regime and to compare the performance with pre-WTO period.***
- ***To find out the prospect of major items of spices and spice products to earn foreign exchange.***

For the study of the export performance, the mathematical tools such as Balassa's Revealed Comparative Advantage and Elasticity of Value with respect to Quantity (EV) were used.

Export performance is the relative success or failure of the efforts of a firm or nation to sell domestically produced goods and services in other nations. Export performance of a country is determined by both demand and supply factors. The demand for spices and spice products is increasing both in domestic and foreign markets. India is the major supplier of many spices and spice products to the world and also major consumer and producer of spices and its products. In the year 2012-13 India exported spices and spice products worth of ₹ 1211275.8 crores against ₹ 804.43

crores in 1995-96. India has comparative advantages in the production of many spices. But global economy has changed after 1995 with the emergence of WTO. Many of the artificial restrictions for the free flow of commodities and services were lifted as a part of multilateral agreements and some of the other impediments were removed as a part of bilateral agreements. This increased the volume of world trade and the number of participating countries in the world trade for the same commodity as exporters and importers. The emergence of new suppliers and new importers altered India's export performance much.

In this chapter, an analysis of the export performance of India's major spices is made by using the Revealed Comparative Advantage (RCA) and the Elasticity of Value with respect to Quantity (EV) and also compared the performance of Pre-WTO period with WTO period. The analysis is presented in two sections viz, Section A- Performance using Revealed Comparative Advantage (Export Performance Ratio) and section B- Performance using Elasticity of Value with respect to Quantity (EV).

SECTION A

6.1 EXPORT PERFORMANCE OF MAJOR SPICES USING REVEALED COMPARATIVE ADVANTAGE

Even though India has been exporting different varieties of spices to the world, more than 90 percent of India's export earnings are from ten items. A study of the export performance of these items would help to understand the performance of the spice sector. In this section India's export performance of major spices during the WTO period and Pre-WTO period are examined by using the RCA. It would help to understand in which spices and spice products India has performed better during the WTO period and Pre-WTO period.

Table 6.1

Ratio of Major Spices in India's Aggregate Exports in Selected Years $\left(\frac{Xj1}{Xt1}\right)$

	1988	1990	1995	2000	2005	2010	2011	2012
Pepper 094011	0.0083836	0.0030809	0.0018558	0.00189671	0.0002348	0.00024542	0.00048585	0.0003231
Chilli/ Capsicum (090420)	0.00089036	0.0008431	0.0018960	0.00102109	0.0009115	0.0015370	0.0016377	0.0018087
Nutmeg (090810)	0.000000062	0.000000401	0.000000645	0.000071181	0.000065646	0.000056501	0.00011621	0.00011912
Mace (090810)	0.000001716	0.000000044	0.000000183	0.0000000621	0.0000015685	0.0000009114	0.000002232	0.0000026128
Cardamom (090830)	0.00063264	0.00048370	0.00020364	0.00040572	0.00008083	0.00019271	0.00026345	0.000231276
Coriander Seed (090920)	0.000304137	0.00012435	0.00021829	0.00017270	0.00016503	0.00015306	0.00011228	0.00012316
Cumin seed (090930)	0.00019495	0.00009103	0.00016342	0.00050982	0.00016716	0.00040270	0.00045283	0.00075719
Ginger (091010)	0.00048413	0.00036061	0.00037873	0.00013206	0.00012563	0.00010548	0.00018239	0.00014590
Turmeric (091030)	0.00099792	0.00047491	0.00044959	0.00053084	0.00036720	0.00064204	0.000064178	0.00037038
Curry (091050)	0.00000221	0.0000004	0.00000156	0.00000923	0.00002991	0.00001061		
Spice Nes. (091099)	0.00046453	0.000294966	0.00041671	0.0008322	0.0003560	0.000402056	0.00041409	0.00041922

Note: Cardamom includes both Cardamom Small and Large. Since UNComtrade data are not available separately for Fenugreek, Tamarind, Spices Oils and Oleoresins and Mint Products, they are included in Spices Nes.
Sources: Calculated from Table Nos. 3.6, 3.11 and 3.13, Data from UN Comtrade Statistics,2014 and WTO Statistics, 2014.

Table 6.1 shows the ratio of major spices to India's merchandise export during 1988, 1990, 1994, 1995, 2000, 2005, 2010, 2011 and 2012. The period includes both the Pre-WTO and WTO periods. From the table it is clear that the ratio is different in all periods. For example in the case of pepper, the ratio decreased much from 1988 to 2012, but for cardamom, coriander, ginger and turmeric there was only a slight decrease in ratio. On the other hand the ratio increased much for nutmeg and chillies and there was a slight increase for curry products.

Table 6.2

Ratio of Major Spices in World Exports in Selected Years (Xj/Xt)

	1988	1990	1995	2000	2005	2010	2011	2012
Pepper (094011)	0.00004167	0.00008616	0.00009660	0.00014718	0.000040245	0.0000696	0.0000873	0.0000641
Chilli (090420)	0.000006559	0.000026593	0.00006056	0.00004526	0.0000562	0.00006356	0.000071254	0.0000298
Nutmeg (090810)	0.0000005298	0.0000092734	0.0000059595	0.00001690	0.000007722	0.000008424	0.00001327	0.000002685
Mace (090810)	0.0000001719	0.0000026179	0.000002126	0.000003077	0.000003630	0.00000341	0.000003746	0.00000029
Cardamom (090830)	0.0000030551	0.000006015	0.000011833	0.00002044	0.000009684	0.00002891	0.00002370	0.00000372
Coriander seed (090920)	0.0000021799	0.000001783	0.000004543	0.000004953	0.0000049149	0.00001009	0.00000749	0.00000288
Cumin (90930)	0.0000009675	0.0000046184	0.000004908	0.00000934	0.000010012	0.00001355	0.0000122	0.00001552
Ginger (091010)	0.000002544	0.000008703	0.000023519	0.000018935	0.0000285	0.00004258	0.00003595	0.00000731
Turmeric (091030)	0.000004706	0.000003363	0.000003998	0.000004585	0.000004846	0.00001288	0.0000130	0.000007551
Curry (091050)	0.000003439	0.000001342	0.0000030275	0.000003135	0.000002969	0.000000258 (2008)		
Spice Nes (091099)	0.000003346	0.00000526	0.00002010	0.00002063	0.00002195	0.00002815	0.00002855	0.00002645

Note: Cardamom includes both Cardamom Small and Large. Since UN Comtrade data are not available separately for Fenugreek, Tamarind, Spices Oils and Oleoresins and Mint Products, they are included in Spices Nes.
Sources: Calculated from Table No.3.2, 3.3 and 3.6, Data from UN Comtrade Statistics, 2014 and WTO Statistics, 2014.

Table 6.2 revealed the ratio of major spices to the world exports during the selected years. From the table one can understand that, the ratio of major spices in the world exports increased for all commodities except for curry products in which the data is available only up to 2008.

Table 6.1 and 6.2 shows that even though the shares of majority of spices in the world export is increasing during the study period, the share of all the major Indian spices has not increased. Indian spices export is not stable but volatile in nature.

Table 6.3

Ratio of Major Spices in India's Merchandise Export and World Merchandise Export during the Pre-WTO &WTO period (Seven Years Average Data of Indian Export)

Items & HS Code	Pre-WTO Period (MidYear1991)		WTO Period (Mid Year 2009)	
	India	World	India	World
Pepper 090411	0.00343052	0.000071245	0.00049791	0.00006389
Cardamom 090830	0.00250368	0.000054825	0.0002151	0.0000304275
Chilli 09420	0.00115762	0.000038788	0.00196969	0.000073792
Ginger 091010	0.00039763	0.000013236	0.00014224	0.000032247
Turmeric 091030	0.00215262	0.000005648	0.00056382	0.000007535
Coriander 090920	0.00027329	0.0000029751	0.00020249	0.0000094375
Cumin 090930	0.00023312	0.0000039428	0.00072866	0.000018168
Nutmeg 090810	0.000000337	0.0000052033	0.000105852	0.0000084108
Mace* 09820	0.000000569	0.0000014494	0.000001763	0.0000024792
Curry Products ** 091050	0.000001199	0.0000013023	0.00002043	0.000002969
Spices Nes. 091099	0.000420714	0.0000087615	0.000508275	0.00003292

* Average of four years data** Average of five years data
Sources: Calculated from UN Comrade Statistics 2014, WTO statistics 2014
Note: (1) Pre-WTO data is the average of seven years exports of each item (from 1988-1994) with midyear 1991 and WTO period data is the average of seven years exports (each item) from 2006-12 with midyear 2009.

From the table 6.3, it is clear that the ratio of spices export to the total exports of India after the existence of WTO have increased for items like chilli, nutmeg, mace, cumin seed, curry products and spices nes. But the ratios of the major traditional items of spices such as pepper, cardamom, ginger, turmeric and coriander have decreased during the WTO regime. But the ratios of these items' world export to the world merchandise export have increased for all items except for pepper.

Table 6.4

Revealed Comparative Advantage (RCA) of Major Spices $\left(\frac{XjI}{XtI} / \frac{Xj}{Xt}\right)$

Items & HS Code	1990	1994	1995	2000	2005	2010	2011
Pepper (090411)	35.76	32.20	19.21	12.89	5.83	3.53	5.57
Cardamom (90830)	80.42	13.87	17.21	19.85	8.35	6.67	11.1
Chilli (09420)	31.7	15.42	31.31	22.56	16.22	24.18	22.98
Ginger (091010)	41.43	10.92	16.10	6.97	4.41	2.48	5.07
Turmeric (091030)	121.31	120.48	112.45	115.78	75.77	49.85	49.36
Coriander (090920)	69.74	52.56	48.05	34.85	33.58	15.17	14.99
Cumin (090930)	19.71	47.49	32.94	54.58	16.70	29.72	35.6
Nutmeg (090810)	0.04	0.12	0.108	4.21	8.5	6.71	8.76
Mace (090820)	0.02	NA	0.009	0.02	0.43	0.27	0.6
Curry products (091050)	0.3	0.24	0.52	2.94	10.07	41.12 (2008)	NA
Spice Nes (091099)	56.01	20.53	20.06	40.34	16.22	14.28	14.53

Note: NA: Data not Available, Data on Curry products are available up to 2008
RCA of 1988 and 2012 are not calculated for more accuracy.
Source: Calculated from Table 6.1 and 6.2, Data from UN Comrade Statistics 2014, WTO statistics 2014 and DGCI & S Calcutta 2014

Table 6.4 clearly shows the Revealed Comparative Advantages of India's major spices and spice products in selected years from 1990-to 2011. Out of eleven products and product groups listed in the table, eight items had RCA greater than one during the Pre-WTO period. During the WTO regime all the commodities except mace have RCA greater than one. Even in mace, the comparative disadvantage is decreasing during WTO regime. For some of the commodities like pepper, ginger, turmeric and coriander, RCA declined during the WTO regime. But all these items still have high RCA especially for turmeric; it is around fifty during 2011. For majority of items RCA is stable in nature. It shows that India has comparative advantage in many spices, but the country is not able to supply the commodities in accordance with the demand.

On the basis of the result obtained from the analysis of data (RCA), major spices and spice products can be classified into three groups.

Group I: RCA>I during the Pre-WTO and WTO period.

Pepper, Chilli, Cardamom, Ginger, Turmeric, Coriander, Cumin and

Spices Nes.

Group II: RCA <I during the Pre-WTO period and >I during the WTO period

Nutmeg and Curry products

Group III: RCA <I during the Pre-WTO & WTO period

Mace

India has comparative advantage in the exports of commodities of Group I and II, which include all major spices except mace. If one

takes nutmeg and mace together like Spices Board classification, one can see that India has obtained comparative advantage in it during the WTO period.

Revealed Comparative Advantage of Major Spices during Pre-WTO and WTO period

Taking the seven years average export value of India's major spices from 1988 to 1994 (period I) and 2006-12 (period II) it is possible to compare the RCA of major items during pre-WTO period and WTO period. This will minimise the effect of weather and other factors in the export of spices.

Table 6.5

Revealed Comparative Advantages of Major Spices during WTO period and Pre-WTO Period

Items & HS Code	Period I (1988-1994)	Period II (2006-12)
Pepper - 090411	48.15	7.79
Cardamom - 090830	45.67	7.069
Chilli - 09420	29.84	26.69
Ginger - 091010	30.04	4.41
Turmeric - 091030	381.10	74.82
Coriander - 090920	91.86	21.45
Cumin - 090930	59.12	40.10
Nutmeg - 090810	0.065	12.58
Mace - 090820	0.39	0.71
Curry Products - 091050	0.92	6.88
Spice Nes - 091099	48.01	15.44

Source: Calculated from Table 6.3.Data from UN Comtrade Statistics, 2014 WTO Statistics 2014 and DGCI &S Calcutta, 2014

Table 6.5 justifies the result of Table 6.4 and it reveals that, during the pre-WTO period India had comparative advantage in the production of eight items of spices, out of eleven commodities. But during WTO period India has comparative advantage in export of ten items of spices. India has comparative disadvantage only in the production and export of 'mace' during the two periods. But for 'mace' too the comparative disadvantage has declined from 0.39 to 0.71. At the same time, the RCA of the eight items that India had comparative advantage during the Pre-WTO period has declined. This decline is not because of the decline in the export earnings from spices, but because of the diversification of exports, high domestic consumption etc.

Revealed Comparative Advantage of Other Spices

An analysis of the changes in the comparative advantage of some other spices is also helpful to understand the general performance of Indian spice sector during the WTO regime. As far as India is concerned the export of spices other than the thirteen spices and spices products constitute less than 10 percentage of our export. But they are important in international trade and there are separate classifications in UN comtrade.

Table 6.6

Revealed Comparative Advantage of Other Spices $\left(\frac{XjI}{XtI} / \frac{Xj}{Xt}\right)$

Commodities & HS Code	1990	1994	1995	2000	2005	2010	2011
Pepper Crushed or ground(090412)	1.37	2.95	2.95	3.72	10.48	6.62	5.73
Vanilla (090500)	0.028 (1989)	0.004	0.34 (1996)	0.62	1.73	3.76	2.01
Cinnamon (Whole) (090610)	1.28	0.15	0.62	0.26	0.39	NA	NA
Cinnamon crushed or ground(090620)	0.09	0.02	0.016 (1996)	0.08	0.32	0.76	1.05
Clove (090700)	0.22	0.26	0.10	0.62	0.41	1.11	1.60
Ani seed (090910)	0.67	0.42	0.53	1.27	3.43	1.03	1.54
Caraway seed (090940)	NA	0.01	0.32	NA	0.34	2.94	1.54
Fennel seed (090950)	44.22	22.86	21.93	23.69	22.92	18.84	17.62
Saffron (091020)	4.16	2.97	2.84	0.84	0.34	0.25	0.24
Thyme/Bay leaves (0910400	2.68	1.23	1.21	0.97	1.05	0.47	NA
Mixture spices (091091)	39.14	14.93	14.00	15.85	4.35	7.66	7.4

Note: NA: Data and not available. The years enclosed in brackets are the actual years since the data are not available for all years
Sources: UN Comtrade statistics, DGCI & S Calcutta, WTO Statistics, (2014).

From Table 6.6, it is clear that out of eleven items of spices and its products, India had comparative advantage only in six items of spices during the WTO Period. But during the WTO period the number of items having comparative advantage increased to eight. Commodities can be classified in to three groups on the basis of their Export Performance Ratio or RCA.

Group I : RCA>1 during the Pre-WTO and WTO period pepper (Crushed or ground), Fennel, Mixture Spices

Group II : RCA < I during the Pre-WTO period and RCA>I during WTO period.

Vanilla, Cinnamon (Crushed or ground) clove, Aniseed, and Caraway seed.

Group III : RCA > I during the Pre-WTO period and RCA< 1 during WTO period.

Cinnamon, Saffron and Thymes.

The above classification is made on the basis of average performance and recent performance. Some items have instability in RCA during some years. India possessed comparative advantage in the exports of items in Group I & II. It shows that during the WTO period India has gained comparative advantage in five items and lost comparative advantage in three items. There is no item which has comparative disadvantage in both periods.

SECTION B

6.2. EXPORT PERFORMANCE OF MAJOR SPICES USING ELASTICITY OF VALUE WITH RESPECT TO QUANTITY (EV)

The export performance Ratio (EPR) or RCA is not enough to understand the export performance of a particular sector. One of the major determinants of EPR or RCA is the export earnings. High export earnings can be attained either by exporting more quantities of commodities or by exporting high valued commodities or both. If the high export earnings are due to the export of more quantities of commodities and not with the export of high valued commodities, the country's prospects for earning foreign exchange will be low. On the other hand, if the high export earnings are due to the export of high valued commodities, and not with the export of more quantities of commodities, the country has more prospects for earning foreign exchange. For comparing the export performance of pre-WTO and WTO periods, the changes in the export quantities and values of major spices were analysed by percentage change in quantity (QC) and value (VC) and Elasticity of Value with respect to quantity (EV) i.e., ratio of VC to QC.

Table 6.7

Export of Major Spices and Spice Products During Pre-WTO and WTO period (Quantity in Tonnes and values in Rupees Crores)

Items	Quantity		Value		Variations (in Percentages)	
	1990-95	**2007-12**	**1990-95**	**2007-12**	**QC**	**VC**
Pepper	160348	125550	682.00	2508.48	-21.17	267.81
Cardamom (S)	1778	9050	56.12	733.10	409	1206.3
Chilli	125047	1082000	314.66	7149.8	765.27	2172.23
Ginger	61103	54500	92.02	435.09	-10.8	372.82
Turmeric	106733	281250	199.84	2224	163.5	1012.89
Coriander	51433	172,050	77.29	870.54	234.5	1026.33
Cumin	14146	208300	64.61	2424.14	1372.5	3651.95
Fenugreek	27968	93150	33.78	312.71	233.06	825.72
Nutmeg & Mace	16	12450	0.11	520.11	77712.5	472727.27
Tamarind	52512	73845	51.51	322.75	40.62	526.58
Mint product *	4503	51200	98.79	5110.23	1037.02	5073.34
Oils & Oleoresin	6581	35065	318.06	4207.26	432.82	1222.79
Curry product	17054	71300	54.59	926.52	318.08	1597.23

Note: QC: Quantity change VC: Value change
*For Mint Product Period I Covers 1992-95 and Period II covers 2010-12.
Sources: Calculated from Table 3.15 to Table 3.27. Data from spices Board.

Table 6.7 reveals the major spice items exported during period I (1990-91 to 1994-95) and period II (2007-08 to 2011-12). From the table it is clear that, the quantity of spices exported from India has increased, except for pepper and ginger. Pepper export decreased by 21.7percent and export of ginger decreased by 10.8percent in

period II as compared to period I. The export quantities of ten items have increased by more than 100 percent in period II. This includes cardamom (S), chilli, turmeric, coriander, cumin, fenugreek, nutmeg, mace, mint products, spices oils, oleoresins and curry products. Considering the value of export, one can understand that the values of all items of spices increased in period II as compared to period I. The export value of nine items has increased by more than 1000percent in period II. This includes cardamom (S), chilli, turmeric, coriander, Cumin, nutmeg, mace, mint products, spice oils, oleoresin and mint products.

Table 6.8

Elasticity of Value with respect to Quantity (EV) of Major Spices

Items	QC	VC	EV= $\frac{VC}{QC}$
Pepper	-21.7015	267.81	NR
Cardamom (S)	408.9988	1206.31	2.95
Chilli	765.27	2172.23	2.838
Ginger	-10.806	372.82	NR
Turmeric	163.508	1012.89	6.19
Coriander	234.51	1026.329	4.376
Cumin	1372.501	3651.957	2.661
Fenugreek	233.069	825.725	3.543
Nutmeg & Mace	77712.5	472722.27	6.083
Tamarind	40.625	526.58	12.96
Mint product	1037.019	5073.34	4.89
Oils & Oleoresin	432.82	1222.79	2.825
Curry product	318.08	1597.23	5.021

Note: QC: Quantity change VC: Value change

NR: No Relevance for EV, (since change in export value is positive and change in export quantity is negative EV will be greater than the value VC).
Source: Calculated from Table 6.7, Data obtained from Spices Board.

From the above table one can understand that the elasticity of value with respect to quantity (EV) of all the major spices is greater than one. It was very high for pepper and ginger, because there is an increase in the value of export of these commodities during the period II even though the quantity of export decreased. For all the commodities the prospects for earning foreign exchange during the WTO regime have more than doubled.

Elasticity of Value in Terms of US Dollar

The export value of the commodity depends upon both the real price of the commodity and the rate of exchange of currency. If the increase in the expert value is due to the increase in the real price of the commodity in the international market, it is desirable; otherwise it is the mere depreciation of domestic currency. Taking into account this fact; the elasticity of values with respect to quantity in terms of US dollarsis estimated for those items in which the data are available.

Table 6.9

Export of Major Spices and Spices Products during the Pre-WTO and WTO Periods (Quantity in tonnes and value in million US Dollars)

Items	Quantity		Value	
	Period I	**Period II**	**Period I**	**Period II**
	1990-94	**2008-12**	**1990-94**	**2008-12**
Pepper	155002.8	114472.34	246.69	432.49
Cardamom	8090.53	21947.58	36.41	299.87
Chilli	122616.67	1144478.54	115.94	1864.38
Ginger	61103.08	92773.45	35.11	144.06
Turmeric	106733	415588.91	73.87	575.17
Coriander	51433.54	178884.25	28.14	189.1
Cumin	13749.65	299050.08	22.14	717.2
Nutmeg	11.037	12977.24	0.036	108.72
Mace	14.46	345.64	0.041	1.87
Curry Products	65.12	13616.77	0.12	20.72
Spices Nes	62313.04	402278.56	39.68	492.45

Note: For mace, period I consist of 1988, 1989, 1990 and 1993 and period II 2009-12 due to non availability of data for 1990-94
Source: UN Comtrade Statistics 2014, DGCI & S, Calcutta 2014

From the table 6.9 it is clear that the quantity of exports of all major spices during the period II (2008-12) has increased except for pepper, but the values of export of all items of spices under consideration during the period II have increased as compared to period I (1990-94).

Table 6.10

Elasticity of Value with respect to Quantity (EV) of Major Spices (Value in US Dollars)

Items	QC	VC	EV= $\frac{VC}{QC}$
Pepper	-26.15	75.31	NR
Cardamom	171.27	723.51	4.22
Chilli	833.38	1508.11	1.81
Ginger	51.83	310.30	5.99
Turmeric	289.37	678.6	2.35
Coriander	247.8	571.9	2.31
Cumin	2074.96	3138.8	1.51
Nutmeg	117479.43	301666.83	2.57
Mace	2290.62	4463.4	1.95
Curry Products	20811.55	17317.64	0.83
Spices Nes	545.58	1140.91	2.09

Note: QC: Percentage change in quantity, VC: Percentage change in value
EV: Elasticity of value with respect to quantity, NR: Not Relevant
Source: Calculated From Table 6.9, Data from UN Comtrade statistics, 2014
DGCI & S, Calcutta, 2014

It is evident from Table 6.10 that Elasticity of Value (EV) of all spices except curry products is greater than one in terms of US dollar also. EV is very high for pepper, since its variation in value is positive and variation in quantity is negative. It is high (more than doubled) for ginger, turmeric, cardamom, nutmeg, coriander and spices nes. Elasticity value is less than one (0.83) only for curry products. Its data in dollar terms are available only up to 2008, and changes after that are not known. For all other items of spices, EV is moderately high (between 1.5 and 2). It shows that Indian spices

have greater prospects to earn foreign exchange during the WTO regime.

6.3. Summary and Conclusion

The key concern of this chapter is to analyse the data obtained from authentic sources by using the most popular and apt mathematical tools for studying the most important research objectives. Balassa's Revealed Comparative Advantage or Export Performance Ratio or RCA is used for studying the comparative advantage and Elasticity of Value with respect to quantity (EV) for studying the prospects of major items of spices and spice products to earn foreign exchange. From the analysis of data the following findings were obtained.

1. During the Pre-WTO period, out of the eleven spices and spices products eight had RCA greater than one, and three had RCA less than one.

2. During the WTO period, ten items showed RCA greater than one and only one ie, mace showed RCA less than one. In the case of mace too, comparative disadvantage is decreasing.

3. For commodities like pepper, coriander, ginger and turmeric, RCA declined during the WTO period, but still they have high RCA.

4. For majority of spices and its products RCA are not stable in nature.

5. RCA calculated using the seven years average export of Pre-WTO and WTO period also shows they same trend.

6. Out of eleven spices other than major Indian spices, the number of commodities having RCA greater than one increased from six to eight during the WTO period.

7. The elasticity of value with respect to quantity (EV) of all major spices is greater than one in terms of Indian rupees and US dollars during the WTO period. It shows that, the prospects of earning foreign exchange are more during WTO period for spices.

8. Pepper, ginger, cardamom, nutmeg, tamarind, turmeric, coriander, mint products and curry products are the spices and spices products having high prospects for earning foreign exchanges.

To conclude that, during the WTO period, the performance of Indian spices exports has been changed. The important changes occurred during this period are, the decrease in the value of EPR for traditional items, increase in the number of items having EPR>1 and increase in the prospects of major items to earn foreign exchange. It shows that by increasing the export of traditional items and diversifying the spice export, India is able to earn more foreign exchange during the WTO regime than before.

Chapter VII
SUMMARY, CONCLUSION AND SUGGESTIONS

7.1 Introduction

Producing more than six million tonnes of different categories of spices worth of approximately four billion US Dollars, India meets about 50 percentage of the rest of the world's requirements even though it is only less than 10 percentage of our spice production. Although consumption of spices has been growing steadily all over the world, in the international scenario after first January 1995, India has been facing challenges in the world market and also seeking the new opportunities of liberalised trade. In the globalised world, the notion of self reliance is a myth and any event whether it is economic, political, social, cultural, and natural, etc. creates consequent ripples in other parts of the world as well. Various studies show that different agricultural commodities exported from India have been responded differently and their levels of growth and comparative advantage in the international market have changed much during the WTO regime.

In this context, it is most apt that an investigation be made to find out the changes in the export performance of major spices, taking into account performance in growth rate, instability of growth rate, trend of growth rate, composition of export, direction of export, export performance ratio and prospects of major spices in earning foreign exchange. So the study is peculiar and relevant in this context.

The researcher has studied and analysed a large number of books, articles, reports, theses and other literature on spices, trade,

export, export performance, measurement of export performance of spices and other products. The research has been motivated by the concern about how the unrestricted trade in the new world scenario affect the traditional export of a developing country like India?

In retrospect, this thesis has investigated the change in export performance of Indian spices export in the WTO regime. The following research objectives have been posed and examined by the research.

1. To analyse the growth in the export of major Indian spices and spices products during the Pre-WTO and WTO periods.

2. To examine the instability and trends in the growth rate of spices exports during the Pre-WTO and WTO periods.

3. To examine the changes in composition and direction of Indian spices export during WTO regime

4. To find out the export performance of various spices and spices products during WTO regime and to compare the performance with Pre-WTO.

5. To find out the prospect of major items of spices and spices products to earn foreign exchange.

The study was exclusively based on secondary data obtained from authentic sources such as-

Spices Statistics 1998 and 2004, Spices Board of India
Spice Export Review 2007, Spices Board of India
Statistics Division, Spices Board of India, Cochin 2014
Directorate General of commercial Intelligence and Statistics, Calcutta, 2014
UN Comtrade Statistics, 2014

Reserve Bank of India Hand Book 2014
WTO Statistics 2014
Economic And Political Weekly, Various issues
Official Websites of Government Departments,
Government Boards, WTO, UNO, RBI, etc.

The important mathematical and statistical tools used for the study were

Chow Test
Average Annual Growth Rate (AAGR)
Compound Annual Growth Rate (CAGR)
Standard Deviation (STDV)
Ordinary Least Square (OLS) Methods
Balassa's Revealed Comparative Advantage (RCA)
Elasticity of Value with respect to quantity (EV)
Percentage
Ratios

Important Diagrams used for the presentation of data are

Bar diagrams
Pie diagrams
Line Chart

The following sections present the summary of study as well as key findings

7.2. SUMMARY

Following the introductory chapter, the second chapter presents the review of literature on trade, gain from trade, export and its determinants, export performance, determinants and measurement of export performance, spices, spices export and its performance, export performance of related products etc.

Chapter three presents the overall view of spices and spices exports of India from 1985-86 to 2012-13.For the presentation of data, a large number of tables were used. It provides a full picture of India's major spices export during the study period.

Chapter four, five and six are related to the specific objectives of study. The information and data given in the third chapter were analysed on the basis of the objectives, using the tools of analysis, for obtaining the answers. These three chapters gave solutions for the five research objectives.

7.3. MAJOR FINDINGS

7.3.1. Findings on Growth of Spices Export

1. During the WTO regime, the Average Annual Growth Rate (AAGR) of five items such as cardamom (S), chilli, cumin, nut meg & mace and mint products are higher than the AAGR of aggregate export of India and five are close to it.

2. During WTO regime, the CAGR of five items such as cardamom (s),cumin, nutmeg & mace, mint products and curry products are higher than the CAGR of aggregate export of India and the growth of four items are close to it.

3. During the pre-WTO period only the AAGR of oil and oleoresins showed a growth rate higher than the growth rate of aggregate export.

4. The CAGR of chilli, coriander, cumin and fenugreek were higher than the CAGR of aggregate export during the pre-WTO period.

5. In the initial ten years of WTO period, the AAGR and CAGR of aggregate export have declined. During that period AAGR of

chilli, coriander, nutmeg/mace, mint products, spice oil, oleoresins and curry products were higher than the growth rate of aggregate export, whereas CAGR of coriander, cumin, nutmeg & mace, mint products, oil and oleoresins, and curry products were higher than the growth rate of aggregate exports.

6. During the period of 2001-02 to 2004-05 growth rates of many spices declined and the number of items having the growth rates higher than the growth rates of aggregate export have declined much.

7.3.2. Findings on Instability in the Growth of Spices Exports

1. Spice export and growth rate in export were highly unstable during the whole period of study, but volatility decreased during the WTO regime except for ginger.

2. In the recent ten years the instability in the growth rate of cardamom, turmeric, tamarind and mint products increased as compared to the first ten years of WTO period.

3. During the WTO period, items having a comparative stable growth are turmeric, coriander, tamarind, spice oil and oleoresins and curry products.

4. In recent years the instability in the export growth of some items such as pepper, cardamom(S), turmeric, coriander, tamarind, mint products, spice oil and oleoresin have increased.

7.3.3. Findings on Trend in the Growth of Spices Exports

1. During the WTO period, the growth rate of eight items show positive trend and they are pepper, cardamom (S), ginger, turmeric, cumin, fenugreek, mint products and tamarind.

2. In the recent period (2003-04 to 2012-13), the number of items of spices showing the positive trend in growth rate has increased to eleven. Only the growth rate of chilli and turmeric exhibit negative trend in growth rate.

7.3.4. Findings Regarding Composition of Spices Exports

1. Even though India's export basket consists of around fifty spices and more than eighty spice products (value added spices), ten items contribute around 90 percentages of export earnings.

2. During the WTO regime (1995-96 to 2012-13) the composition of spice export has changed .The combined share of India's traditional items of spices such as pepper ,ginger, tamarind and fenugreek have declined considerably from 34.16 percentage to 9.46 percentage. On the other hand, the share of some new items of Indian export such as nutmeg and mace, and mint products have increased from 5.98 percentages to 32.07 percentage.

3. During the WTO period, the share of pepper has declined sharply to 6.02 percentages from 24.4 percentages. The share of mint products has been sharply increased from 5.9 percentages to 29.73 percentages.

4. The share and ranks of value added spices such as curry products, mint products and oils and oleoresins have almost

doubled. It was only 22.38 percentages during 1995-96 and it increased to 44.15 percentages during 2012-13.

7.3.5. Findings regarding the Direction of Spices Exports

1. The share of export to the countries other than the major export destination has increased for all items of spices during the WTO period. This increase is substantial for cumin (14.3 percentage to 73.04 percentage), mint products (10.58 percentage to 58.07 percentage) and spice oil and oleoresins (20.83 percentages to 47.45 percentages).

2. Even though the share of export to USA and UK have decreased for some spices, they have gained in some other spices and continued to be the largest markets for Indian spices.

3. There exists wide instability in the share of export to majority of countries.

4. South Africa and Saudi Arabia are more stable markets for some major Indian spices.

5. During the WTO regime, the increase in market share of UK, UAE, Japan and Malaysia are more than the decrease in the market share of spices.

7.3.6. Findings on Revealed Comparative Advantage of Spices Exports

1. During the Pre-WTO period, out of the eleven spices and spices products, eight had RCA greater than one, and three had RCA less than one.

2. During the WTO period, ten items showed RCA greater than one and only one, i.e., mace showed RCA less than one. In the case of mace too, comparative disadvantage is decreasing.

3. For commodities like pepper, coriander, ginger and turmeric, RCA has declined during the WTO period, but still they have high RCA.

4. For majority of spices and its products RCA are is not stable in nature.

5. RCA which is calculated using the seven years average export of Pre-WTO and WTO period also shows the same trend.

6. Out of eleven spices other than the major Indian spices, the number of commodities having RCA greater than one increased from six to eight during the WTO period.

7.3.7. Findings on Prospects of Major Spices to Earn Foreign Exchanges

1. The elasticity of values with respect to quantity (EV) of all major spices is greater than one in terms of Indian rupees and US dollars during the WTO period. It shows that, the prospect of earning foreign exchange is more during WTO period for spices.

2. Pepper, ginger, cardamom, nutmeg, tamarind, turmeric, coriander, mint products and curry products are the spices and spices products having high prospects for earning foreign exchanges, so their export is to be promoted to earn more foreign exchange.

7.4. SUMMARY OF FINDINGS

As regards the first and second objectives of the study, the research found that, the number of major items of spices exports having an Annual Average Growth Rate (AAGR) and Compound Annual Growth Rate (CAGR) greater than the growth rate of India's aggregate exports has increased much during the WTO period and the growth rates of all items except pepper are double digits. Since many of the internal and external shocks affect a country's export in the globalised world, against the general belief, India's spices exports growths are more stable during the WTO period than the pre-WTO period. Even though the number of spices having positive trend in growth rate is less during the whole period of WTO compared to the pre-WTO period, recent ten years growth trend is more encouraging than the pre-WTO period.

Regarding the third objective, the study found that, the composition of spices export during the WTO period has changed. The shares of traditional items of spices have declined while the export of some new items and value added items have increased. Even though the USA and the UK are continue to be the largest market for many Indian spices, the share of export to the countries other than the major export destination has increased for all major items of spices during the WTO period.

Regarding the fourth objective, the study found that even though the RCA of some items of spices have declined during the WTO regime, the number of items having comparative advantage (RCA >1) increased, and even to the item (mace) suffering comparative disadvantage in export experienced a decline in disadvantage. For majority of spices RCAs are not stable during WTO period.

As regard the fifth objective, the study found that, the prospects of earning foreign exchange of major Indian spices is high during the WTO regime. India can earn more foreign exchange through the export of spices and their products.

7.5 CONCLUSION

India requires a huge amount of foreign exchange for its essential imports and for achieving rapid growth. Millions of job opportunities have to be created to utilise the youth for nation building. Even though a country has different sources of foreign exchange, export earning is the safe way of obtaining it in the long run. Export of high valued traditional products not only gives foreign exchange to the nation but also employment to large number of people. Spices are the traditional products of India whose production process is highly intensive in semi and unskilled labour, with high domestic and foreign market prices compared to other traditional products. The new world trade scenario with the establishment of WTO, has affected Indian spices export considerably. Considering the growth of export, trend and instability in growth, changes in the composition and direction of spices, export performance ratio and the prospects of spices in earning foreign exchange, one can conclude that the overall performance of spices exports during the WTO regime is satisfactory. But there is a decrease in market share of spices export during the WTO period. It reflects that, the favourable conditions in the international market are not exploited by India. High RCA and EV of major spices amidst the low export shares show that India's export performance of spices during the WTO regime is not mainly affected by external demand as suggested by Ragnar Nurkse in his Demand Deficiency Thesis (supported by Singer and Prebish), but because of internal supply factors as suggested in Supply Deficiency Thesis, (supported by K.S Dhinsha,

Dacosta, Goddamwar, etc.). But the fluctuations and decrease in demand during the recession period (Economic Survey 2002) show that external demand is also a determinant of Indian spices export. From this one can conclude that both the domestic supply factors and foreign demand factors influence the export performance of Indian spices. The long term performance of Indian spices exports are mainly influenced by domestic supply factors as suggested by Supply Deficiency Thesis and short term performance is mostly influenced by external demand factors as suggested by Demand Deficiency Thesis.

7.6 SUGGESTIONS

Spices are generally high valued labour intensive and resource intensive products. Production and export of such products creates more employment opportunities and helps to earn more foreign exchange to the country. India has Revealed Comparative Advantages in the production of majority of spices, and their prospects of earning foreign exchange are high during the WTO regime. Hence adequate measures have to be taken to promote the export of spices and their products especially those having high prospects of earning foreign exchange.

On the basis of the findings of the study, the following suggestions are made for the improvement of export performance of Indian spices.

Measures to Increase Domestic Supply

- Export growths of Indian spices are highly volatile in nature. The main reason for such volatility is the instability of domestic supply of spices. Therefore adequate support has to be given to farmers in the form of supply of high yielding

varieties of seeds, fertilizers, pesticides and insecticides, free of cost or at concessional rate.

- Crop disease and failure are very common in spice sector, therefore farmers should be brought under the Crop Insurance Scheme and delay in the compensation should be avoided.
- Since majority of spice producing countries are able to supply spices at a lower price than India in the world market, efforts are to be taken to increase productivity and to reduce price.

Measures to Increase Foreign Demand

- Instead of exporting spices in the raw form, India should export more value added spices in the light of changed market behaviour, changes in consumer preferences, emergence of super market and shopping malls.
- Since the quality stipulations of different countries are different and countries like USA, UK and Middle East are becoming more health conscious, quality of spices should be increased. Information regarding the quality stipulations laid by different countries and their changes has to be passed to the farmers and exporters by the concerned authorities.
- Since International Trade fairs are very common in the modern world, spices exporters should participate in all possible trade fairs and exhibitions in different part of world to familiarize spices and spices products to new buyers.

FUTURE RESEARCH SCOPE

1. Changes in the Export Performance of Major spices during WTO Regime: A comparative Study with Leading Spices Exporting Countries using Revealed Comparative Advantage Index Analysis.

2. Changes in the Direction of India's Spice Export during the WTO Period and its Impact on Quality and Composition of Spices Exports.

3. Export Performance of India's Major Spices in the WTO Regime: A Constant Market Share Analysis.

APPENDIX-I

(SPICES UNDER THE PURVIEW OF THE SPICES BOARD)

Sl. No	English Name	Common Botanical Name	Family Name	Part used as spice
1	Cardamom (Small)	*Elettariacardamomum*	Maton Zingiberaceae	Fruit, Seed
	Cardamom (Large)	*Amomumsubulatum* Roxb	Zingiberaceae	Fruit, Seed
2	Pepper .	*Piper nigrum*L	Piperaceae	Fruit
3	Chilli.	*Capsicum annuum*L	Solanaceae	Fruit
	Bird's Eye	*Capsicum frutescens*L.	Solanaceae	Fruit
	Capsicum	*Capsicum annuum*L.	Solanaceae	Fruit
	Paprika	*Capsicum annuum*L.	Solanaceae	Fruit
4	Ginger Rosc.	*Zingiberofficinale*	Zingiberaceae	Rhizome
5	Turmeric.	*Curcuma longa* L	Zingiberaceae	Rhizome
6	Coriander	*Coriandrumsativum*L.	Apiaceae	Leaf & Fruit
7	Cumin	*Cuminumcyminum*L.	Apiaceae	Fruit
8	Fennel Mill.	*Foeniculumvulgare*	Apiaceae	Fruit
9	Fenugreek	*Trigonellafoenum-graecum*L.	Fabaceae	Seed
10	Celery	*Apiumgraveolens*L.	Apiaceae	Leaf,Fruit,& Stem
11	Aniseed	*Pimpinellaanisum*L.	Apiaceae	Fruit
12	Ajowan	*Trachyspermumammi*L.	Apiaceae	Fruit
13	Caraway	*Carumcarvi*L.	Apiaceae	Fruit
14	Dill	*Anethumgraveolens*L.	Apiaceae	Fruit
15	Cinnamon	*Cinnamomumzeylanicum*	BreynLauraceae	Bark
16	Cassia.	*Cinnamomum cassia*	BlumeLauraceae	Bark
17	Garlic.	*Allium sativum*L	Alliaceae	Bulb
18	Curry leaf	*Murrayakoenigii(L)*	SprengelRutaceae	Leaf

Sl. No	English Name	Common Botanical Name	Family Name	Part used as spice
19	Kokam	*Garciniaindica*	ChoisyClusiaceae	Rind
20	Mint	*Menthapiperita*L.	Lamiaceae	Leaf
21	Mustard	*Brassica juncea* L.	CzernBrassicaceae	Seed
22	Parsley	*Petroselinumcrispum*	Mill. Apiaceae	Leaf
23	Pomegranate	*Punicagranatum*L.	Punicaceae	Seed
24	Saffron	*Crocus sativus*L.	Iridaceae	Stigma
25	Vanilla	*Vanilla planifolia*	Andr. Orchidaceae	Pod
26	Tejpat	*Cinnamomumtamala* (Buch Ham)	Lauraceae	Bark & Leaf Nees & Eberum
27	Pepper Long	*Piper longum*L.	Piperaceae	Fruit
28	Star Anise	*Illiciumverum*	Hook. Illiciaceae	Fruit
29	Sweet flag	*Acoruscalamus*L.	Araceae	Rhizome
30	Greater Galanga	*Alpiniagalanga*	Willd. Zingiberaceae	Rhizome
31	Horse Radish	*Armoraciarusticana*	Gaertn. Brassicaceae	Root
32	Caper Flower	*Capparisspinosa*L.	Capparidaceae	Buds
33	Clove	*Syzygiumaromaticum(L)*	Merr.& Perry Unopened	Flower bud
34	Asafoetida	*Ferula asafoetida* L	ApiaceaeOleogum resin from rhizome and thickened	root

Sl. No	English Name	Common Botanical Name	Family Name	Part used as spice
35	Camboge	*Garciniacambogia* (Gaertn).	DesrClusiaceae	Rind
36	Hyssop.	*Hyssopusofficinalis*L	Lamiaceae	Leaf
37	Juniper berry	*Juniperuscommunis*L.	Cupressaceae	Berry
38	Bay Leaf	*Laurusnobilis*L.	Lauraceae	Leaf
39	Lovage	*Levisticumofficinale*	Koth. Apiaceae	Leaf&Stem
40	Marjoram	*Marjoranahortensis*	Moench. Lamiaceae	Leaf
41	Nutmeg	*Myristicafragrans*	Houtt. Myristicaceae	Seed
42	Mace	*Myristicafragrans*	Houtt. Myristicaceae	Aril
43	Basil	*Ocimumbasilicum*L.	Lamiaceae	Leaf
44	Poppy seed	*Papaversomniferum*L.	Papaveraceae	Seed
45	Allspice	*Pimentadioica*(L)	Merr. Myrtaceae	Fruit & Leaf
46	Rosemary	*Rosmarinusofficinalis*L.	Lamiaceae	Leaf
47	Sage	*Salvia officinalis*L.	Lamiaceae	Leaf
48	Savory	*Saturejahortensis*L.	Lamiaceae	Leaf
49	Thyme	*Thymus vulgaris* L.	Lamiaceae	Leaf
50	Oregano	*Origanumvulgare*L.	Lamiaceae	Leaf
51	Tarragon	*Artemisia dracunculus*L.	Asteraceae	Leaf
52	Tamarind	*Tamarindus in dica*L.	Caesalpiniaceae	Fruit

Source: Spices Board, Cochin

Appendix-II

Trends in the Export Growth of Major Spices during the Period from 1985-86 to 1994-95

Years	Pepper	Cardamom	Chilli	Ginger	Turmeric	Coriander	Cumin	Fenugreek	Nutmeg & Mace	Tamarind	Mint Products	Spice Oil & Oleoresin	Curry products
1985-86	-21.75	-56.77	21.47	-21.75	-2.87	4.74	-26.25	-14.03	NA	NA	NA	21.30	6.61
1986-87	-17.17	-48.9	21.08	-17.17	-0.08	5.08	-17.05	-7.59	NA	NA	NA	21.43	8.05
1987-88	-12.59	-41.05	20.69	-12.58	2.70	5.43	-7.84	-1.14	NA	NA	NA	21.57	9.49
1988-89	-8.00	-33.19	20.29	-8.00	5.50	5.78	1.36	5.30	NA	NA	NA	21.70	10.93
1989-90	-3.42	-25.33	19.9	-3.41	8.29	6.12	10.56	11.74	NA	1.83	NA	21.83	12.37
1990-91	1.16	-17.47	19.51	1.16	11.08	6.46	19.76	18.18	NA	1.87	NA	21.97	13.81
1991-92	5.74	-9.61	19.12	5.74	13.87	6.81	28.97	24.63	NA	1.89	NA	22.11	15.25
1992-93	10.33	-1.74	18.73	10.33	16.65	7.16	38.17	31.07	NA	1.93	NA	22.24	16.69
1993-94	14.91	6.11	18.33	14.91	19.45	7.51	47.37	37.51	NA	1.96	NA	22.37	18.13
1994-95	19.5	13.97	17.94	19.5	22.23	7.85	56.57	43.96	NA	1.99	NA	22.51	19.57

Source: Calculated from Table 4.7 and 4.8.
Data from Spice Statistics 2004 ,SpiceBoard,Cochin

APPENDIX III

Ratio of Other Spices in India's Aggregate Exports in Selected Years $\left(\frac{Xj1}{Xt1}\right)$

Pepper crushed or ground (090412)	0.000012486	0.000003446	0.000024699	0.00003830	0.000101339	0.000102433	0.000111069	0.000168225
Vanilla090500	0.000000210 (1989)	-	0.00000342 (1996)	0.000011388	0.000018310	0.000021524	0.000012413	0.000015572
Cinnamon (090610)	0.000007240	0.0000180244	0.000009576	0.000003752	0.000004552	0.000003569 (2008)		
Cinnamon crushed or ground(090620)	0.000000057	0.000000594	0.00000095 (1996)	0.000000118	0.000000514	0.000002490	0.000003934	0.000004999
Clove(090700)	0.000002507	0.000006097	0.00000054	0.000009482	0.000004589	0.000010968	0.000063628	0.000015583
Aniseed(090910)	0.000000615	0.000001225	0.00000200	0.00000453	0.000009864	0.000004925	0.000004975	0.000005413
Caraway Seed (090940)		0.000000065 (1994)	0.000000662	(negligible)	0.000004111	0.000006301	0.000002970	0.000005005
Fennel seed(090950)	0.000108032	0.0000617375	0.000073540	0.000077714	0.00005831	0.000071729	0.00006434	0.00007618
Saffron(091020)	0.00010308	0.00003077	0.000012342	0.000009251	0.000004136	0.000006611	0.000005006	0.000007379
Thyme Bay Leaves 091040	0.00001693	0.00001198	0.000007481	0.000005882	0.000005971	0.000002178 (2008)	-	-
Mixture of spices (091091)	0.0002741068	0.000192178	0.00015986	0.00017962	0.0005821	0.00012678	0.0001281	0.000143957

Note: Data for some years are not available
Sources: Calculated from Table Nos. 3.6, 3.13 and 3.15, Data from UN Comtrade Statistics, 2014 and WTO Statistics, 2014.

APPENDIX IV

Ratio of Other Spices in World Exports in Selected Years (Xj/Xt)

Pepper crushed or ground (090412)	0.000001797	0.000002512	0.000008371	0.00001030	0.0000096673	0.000015483	0.00001939	0.00001567
Vanilla (090500)	0.000007530 (1989)	0.00002633	0.00001011 (1996)	0.00001843	0.00001059	0.000005728	0.000006167	0.000000321
Cinnamon (090610)	0.00000003565	0.00001408	0.00001537	0.00001427	0.000011639	0.000001589 (2008)	-	-
Cinnamon crushed or ground (090620)	0.0000000905	0.000006675	0.000005868	0.000001424	0.000001610	0.000003293	0.000003737	0.000004094
Clove (090700)	0.000000147	0.00001174	0.000005193	0.00001533	0.00001111	0.00000986	0.00003968	0.00000337
Aniseed (090910)	0.000001451	0.000001818	0.000003792	0.00000357	0.000002876	0.00000475	0.00000324	0.000000145
Caraway seed(090940)	0.0000000791	0.00000492 (1994)	0.000002842	0.000002041	0.000001198	0.000002140	0.000001931	0.000000388
Fennel seed(090950)	0.00000100	0.000001396	0.000003353	0.00000328	0.000002544	0.000003808	0.000003651	0.000001721
Saffron (091020)	0.000001949	0.00000740	0.00000435	0.00001098	0.00001206	0.00002670	0.00002038	0.00003942
ThymeBay Leaves 091040	0.000000283	0.00000447	0.00000620	0.000006066	0.000005656	0.00000461 (2008)		
Mixture of spices 91091	0.000004487	0.00000491	0.00001142	0.00001133	0.00001339	0.00001655	0.00001729	0.00001850

Sources: Calculated from Table No.3.4, 3.5 and 3.6, Data from UN Comtrade Statistics, 2014 and WTO Statistics, 2014

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