

M.S.78. LATHA THAMPURAN—Physiological Effect of Copper (11) on *Sunetta Scripta* L. —1987—Dr. R. Damodaran and Dr. P.N.K. Nambisan

Many of the aquatic invertebrates especially bivalves capable of concentrating heavy metals and other contaminants have been proved useful in assessing the pollution of the marine environment. Hence, bivalve mollusc *SUNETTA SCRIPTA* is chosen for investigating the toxic effects of the heavy metal copper.

Influence of salinity on the oxygen consumption rate of the animals was investigated by the experiments conducted at 20×10^{-3} , 25×10^{-3} salinities. From the results of the experiments conducted with different copper concentrations (1 and 2 mg l^{-1}) it is observed that the copper induced reductions in oxygen consumption rate were more pronounced in higher salinities and became less obvious in lower salinities when compared to the control values. The rate of filtration and body weight showed a linear relationship while the filtration rate (per mg of the body weight) is observed to decrease with increasing body weight. On comparison of the filtration rates obtained under the three different experimental salinities the copper induced reduction in filtration rate was slightly greater in higher salinities than in low salinities, when compared to the control values.

It was observed that, of the five different tissues investigated (gills, mantle, viscera, foot & adductor muscle) the gill tissue had considerably very high concentrations of the metal in all the three size groups (20–25 mm, 30–35 mm and 40–45 mm) at all times. The efficiency of accumulation was also observed to be highest with the gills under almost all the experimental conditions. Next to the gills, mantle had the greatest amount of accumulated metal which is followed by viscera. The lowest efficiency is exhibited by 'foot' while adductor muscle is seen to be more efficient when compared to 'foot'.

Salinity, an important environmental parameter is also known to exert its influence on the copper-bioaccumulation of *S. scripta*. Even though 'body size' of the organism is not seen to exert a significant influence on the rate of uptake of copper, the uptake rates were observed to decrease slightly with increasing size of the clams.

The animal's capacity to concentrate copper to very high levels in body tissues makes it fit for monitoring the effects of pollution load as well as for chemical analysis.