

**M.S.97. PRABHUDEVA, K.N.—Toxicity Accumulation and
Depuration of Heavy Metals in the Brown
Mussel *Perna Indica*—1988—Dr. N.R. Menon**

A study on the combined toxicity of copper and silver and the different salt forms of these metals on life and activity of *Perna indica*, the commercially important marine bivalve was carried out.

Acute toxicity of copper and silver; accumulation and depuration of copper in the tissues like mantle, gill, adductor muscle and remaining tissue of *Perna indica*; accumulation and depuration of silver supplied as carbonate and oxide, copper provided in the nitrate and chloride form, from the whole tissue; oxygen consumption during the process of accumulation and depuration; rate of filtration during the process of accumulation and depuration; the rate of accumulation and depuration of copper and silver supplied in nitrate and sulphate form, individually and in combination, and rates of oxygen consumption and filtration during the accumulative and depurative processes when *Perna indica* was exposed to sublethal concentrations of the above metals.

At lethal levels silver was more toxic than copper among the two heavy metals. The results on combined toxicity showed that a combination of copper and silver when supplied in sulphate form was more toxic than the other salt form. At lethal levels these combinations were more than additive with reference to combined toxicity.

The rate of oxygen consumption and filtration were significantly effected by the presence of heavy metals in combination, although the additivity ranged from simple additivity to less than additivity.

The different forms of metals also affected the rate of filtration and oxygen consumption of *Perna indica*. Sublethal levels of copper and silver present in the form of sulphates showed more deleterious effects on oxygen consumption and rate of filtration.

Conspicuous variations were noticed in the rate of filtration and oxygen consumption by *Perna indica* when exposed to heavy metal combinations as a function of time ranging from 0 to 7 days.

The rate at which *Perna indica* accumulated or depurated copper and silver varied as a function of concentration and time. Further, the different salt forms of the same metal were found to influence the rate of accumulation and depuration in *Perna indica*.

The assessment of the load of heavy metals supplied individually, in combination and in different salt forms, showed varying pattern of distribution in the different tissues of *Perna indica*.