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Excretory Products of Green Mussel Perna viridis L. and their Implications on Power Plant Operation

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Abstract: Excretion in marine animals is considered an important factor in assessing physiological status. Perna viridis, a widely distributed bivalve species, was found to be the dominant (>70%) organism in the seawater intake tunnel of Madras Atomic Power Station (MAPS). The excretion patterns (ammonia, nitrite, phosphate and fecal matter production) of three different size groups (4-5 cm, 6-7 cm, and 8-9 cm shell length) of P. viridis were studied in the laboratory at different salinities (15, 20, 25, 30 and 34 ppt). The amount of excreted products was positively related to the size of the mussels. At ambient salinity, the slope (b) values of the regressions against shell length were 1.5 for ammonia and 0.3 for nitrite, nitrate, phosphate, and fecal matter. Lowering of salinity resulted in a reduced rate of excretion for all the parameters studied except for ammonia. Ammonia excretion in all the size groups increased as the salinity was lowered up to 25 ppt; thereafter, the excretion rate was reduced and completely stopped at 15 ppt salinity.

Key Words: Perna viridis, salinity, excretion, ammonia, nitrite, nitrate, phosphate, fecal matter.

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