

RESEARCH ARTICLE

## Impact of subacute concentration of cadmium on the levels of ions and associated ATPases in freshwater mussel, *Lamellidens marginalis* (Lamarck) and freshwater fish, *Labeo rohita* (Hamilton)

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**ABSTRACT**..... The levels of Na<sup>+</sup>, K<sup>+</sup> and Ca<sup>2+</sup> ions and the activities of Na<sup>+</sup>-K<sup>+</sup>, Mg<sup>2+</sup> and Ca<sup>2+</sup> ATPases were estimated in the ctenidium, mantle, hepatopancreas and foot of the freshwater mussel, *L. marginalis* and gills, kidney, liver and muscle of the freshwater fish, *L. rohita* on exposure to a subacute concentration of cadmium (0.7mg/l) at days 10, 20 and 30. The levels of all the ions and the activity of ATPases increased in all the organs of the mussel at all the days of exposure to subacute concentration; but in the organs of fish an increase was observed only at day 10 and 20 with a decrease of them at day 30. Among the exposure periods, the elevation was gradually recovered over time of exposure in the organs of mussel, in the order: day 10 > 20 > 30, whereas in the organs of fish though the elevation was more at day 10 and less at day 20, but the levels and associated ATPases significantly decreased at day 30. In between the two animals, the elevation in the mussel gradually suppressed and reached to normal at day 30; whereas in fish the initial increase in the levels of ions and ATPases lead to a decrease of them at day 30. The results indicated decreased uptake of ions in both the animals exposed to subacute concentration due to the suppression of energetics and suppression of ATPases, the mussels could maintain the normal state of ionic balance on prolonged exposure to subacute cadmium stress; but the fish exhibited susceptibility.

**KEY WORDS**..... *Lamellidens marginalis*, *Labeo rohita*, Cadmium, Subacute concentration

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