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Regulation of aluminium uptake by the freshwater bivalve *Anodonta cygnea* L.

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Although highly toxic, aluminium (Al) is considered to be relatively unavailable to aquatic organisms at neutral pH due to its insolubility. Owing to their feeding strategy, bivalves come in contact with both dissolved and particulate forms of the metal and thus are potentially more exposed to Al than other molluscs. The mechanism of Al regulation by the freshwater bivalve *A. cygnea* was investigated following exposure to two environmentally relevant concentrations (250 and 500 mg l^{-1} added Al) for up to 15 days at neutral pH.

Shell opening time was unaffected by 250 mg l^{-1} Al but was reduced by 50% following exposure to 500 mg l^{-1}, with little subsequent recovery. Tissue Al concentrations after 15 days exposure were up to 10 times higher in animals exposed to 250 mg l^{-1} compared to 500 mg l^{-1} added Al suggesting that shell closure is a short-term response to reduce Al uptake. Mussels exposed to the lower Al concentration produced pseudofaeces with significantly higher Al content that those exposed to the higher concentration suggesting that mucus production may also regulate metal uptake. In addition, lysosomal activity in digestive gland, a common detoxification mechanism in molluscs for the removal of metals was increased as a response to Al, at both exposure concentrations.

These results confirm that Al is bioavailable at neutral pH and that *A. cygnea* possess mechanisms for regulating the metal.

[Poster / Eligible for Student Award]