Short-term effects of an organochloride pesticide (endosulfan) on amphibian tadpoles

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Many studies have shown the harmful effect of endosulfan on amphibian tadpoles. It affects survival after long or high exposition and acts on the nervous system. However, little is known on behavioural effects on the short term after exposition to environmental concentrations. Our aim was then to stick particularly on this point in using tadpoles of the common frog, *Rana temporaria*. The tadpoles were placed in a replicated design with five treatments, including controls and different pesticide concentrations during eight days, but only the first four days with pesticide. Ten behavioural patterns were recorded in the 20 aquaria three times a day during eight days. Morphology and survival were also studied. Endosulfan affected survival, growth and behaviour. The most outstanding results are the immobility and "spirling" behaviours. In correlation with the immobility, we observed a strong reduction in breathing and movements up to water surface. Feeding was negatively affected. Body mass and length of contaminated tadpoles were lower than those in control conditions. To conclude, these results show that endosulfan is a harmful substance on the very short term as it deeply affects behaviour, growth and survival at environmental concentrations. Even before survival is affected, their altered behaviour could make tadpoles easy prey and thus affect indirectly survival. The present results show that endosulfan could cause amphibian declines in area where there are used and that much caution much be taken for the use of this chemical at proximity of water bodies.

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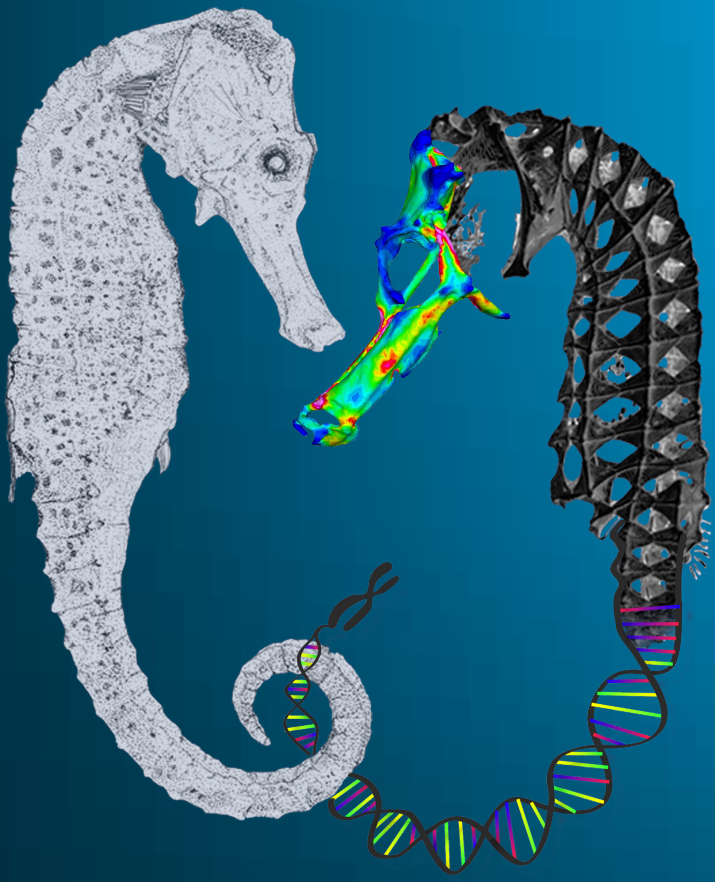

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