Toxic Effects of Crotocaudin Extracted from the Medicinal Plant *Croton tiglium*

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The compound crotocaudin extracted from the stem bark of the medicinal plant *Croton tiglium* Linn. was administered for 24 h or 96 h to the freshwater vector snail *Lymnaea (Radix) acuminata* Lamarck in order to test its toxicity. *L. acuminata* is the intermediate host of *Fasciola hepatica* and *Fasciola gigantica* which cause immense harm to man and his domestic animals. It was observed that the molluscicidal activity of crotocaudin against *L. acuminata* is time- as well as dose-dependent. There was a significant negative correlation among LC50 values and exposure periods, *i.e.* increasing the exposure time, the LC50 value of crotocaudin decreased from 5.37 \(\mu\)M (24 h) > 2.08 \(\mu\)M (48 h) > 1.36 \(\mu\)M (72 h) to 1.01 \(\mu\)M (96 h), respectively, against *L. acuminata*. The toxicological experiments to proof for environmental toxicity, if any, have also been carried out on the non-target freshwater fish *Channa punctatus* (Bloch) [Channidae (Ophicephalidae)], which shares the habitat with *L. acuminata*.

The sublethal doses of crotocaudin (40% and 80% of LC50) administered over 24 h caused significant changes in the carbohydrate and nitrogenous metabolisms in nervous, hepatopancreas, and ovotestis tissues of *Lymnaea acuminata. Channa punctatus* was also exposed to sublethal doses of crotocaudin (40% and 80% of 24-h LC50 of *L. acuminata*) for 96 h which showed significant alterations in the metabolism in muscle, liver, and gonad tissues. After withdrawal of crotocaudin the snail tissues recovered in part after 7 days and the fish tissues completely.

**Key words:** Snail, Schistosomiasis, Metabolism, Enzyme Activity