

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

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The compound crotoncaudin 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 crotoncaudin against *L. acuminata* is time- as well as dose-dependent. There was a significant negative correlation among LC_{50} values and exposure periods, *i.e.* increasing the exposure time, the LC_{50} value of crotoncaudin decreased from $5.37\ \mu\text{M}$ (24 h) > $2.08\ \mu\text{M}$ (48 h) > $1.36\ \mu\text{M}$ (72 h) to $1.01\ \mu\text{M}$ (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 crotoncaudin (40% and 80% of LC_{50}) 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 crotoncaudin (40% and 80% of 24-h LC_{50} of *L. acuminata*) for 96 h which showed significant alterations in the metabolism in muscle, liver, and gonad tissues. After withdrawal of crotoncaudin the snail tissues recovered in part after 7 days and the fish tissues completely.

Key words: Snail, Schistosomiasis, Metabolism, Enzyme Activity