

ABSTRACT

Molluscicidal Activity of Selected Jamaican Medicinal
Plants against *Thiara granifera* (Lamarck, 1758),
(Gastropoda: Prosobranchia: Thiaridae).

Margelette Ellis-Tabanor

This study investigated the acute toxic effects of the aqueous and ethanol extracts of eleven selected Jamaican medicinal plants against *Thiara granifera* (Lamarck, 1758). The secondary metabolites of the aqueous and ethanol extracts of *Guaiacum officinale* L., *Croton linearis* Jacq. and *Eupatorium odoratum* L. were also investigated. The molluscicidal compounds in the active, aqueous extracts were isolated and identified by a combination of column and thin layer chromatography, phytochemical analyses, bio-assays and gas chromatography / mass spectroscopy. The toxic effects of the active compounds on two non-target organisms, *Gambusia puncticulata* (Poey, 1854) and *Veronicella sloanei* (Cuvier, 1817) and the effect on the fecundity of *T. granifera* were determined. *G. officinale*, *C. linearis*, *E. odoratum* and *Pithecellobium unguis-cati* (L.) Benth. exhibited molluscicidal activity. The potencies as indicated by the LC₅₀ values (mg/l) in brackets, of the aqueous and ethanol extracts were in the order: *G. officinale* (1.7) > *C. linearis* (29.1) > *E. odoratum* (54.1), and *P. unguis-cati* (3.0) > *G. officinale* (7.6) > *E. odoratum* (27.6), respectively. The aqueous extracts of *G. officinale*, *C. linearis* and *E. odoratum* all contained saponins, alkaloids and triterpenes. The ethanol extracts contained saponins, tannins, flavonoids, triterpenes, steroids and reducing compounds for *G. officinale*, saponins, flavonoids, triterpenes and steroids for *C. linearis* and

flavonoids, triterpenes and steroids for *E. odoratum*. The active principles isolated were Norharman from *G. officinale*, and a mixture of L-N-methylcrotonosine / linearisine (M / L mixture) from *C. linearis*. These alkaloids had narcotizing, repellent and anti-feedant effects on *V. sloanei*. Norharman was harmless to *G. puncticulata* but the M / L mixture inflicted 55.5 % mortality on the fish. The M / L mixture appeared to suppress the development of hatchlings in the brood pouches of *T. granifera*. Norharman and the M / L mixture reduced the number of hatchlings released from the brood pouches of *T. granifera* by 60% and 40%, respectively.

Keywords: Margelette Ellis-Tabanor; acute toxic effects; *T. granifera*; *G. officinale*; *C. linearis*; *E. odoratum*; *P. unguis-cati*; secondary metabolites; Norharman; L-N-methylcrotonosine; linearisine; *G. puncticulata*; *V. sloanei*; fecundity.