Novel Strategy for Controlling Population of Pest Snails Using Plant Extracts

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Apple snail (Pomacea canaliculata), pulmonate snail (Cryptozona siamensis), and giant African snail (Achatina fulica) are important agricultural pests that cause cultivation problems in Thailand. In this study, the effects of different crude plant extracts on egg hatching and adult mortality rates of these three snails in both lab settings and field experiments were evaluated. We found that spraying the 80% (v/v) kaffir lime juice directly to those eggs resulted in a drastic reduction of the hatching rate to 5.08 to 6.20% compared to 99.58 to 100% hatching rate of the control eggs. For controlling the adult snails, we used unriped papaya fruits mixed with 0.3% (w/v) ethanol extract of young eucalyptus leaves as poisoning baits. Interestingly, The observed mortality rates of the snails were as high as 93.60 to 100% . We further investigated chemical components present in the eucalyptus extracts and found several compounds belonging to terpenoids, flavonoids, saponins, and cardiac glycosides. One or more of these compounds might cause the mortality in these snails. Since these plants were non toxic to human , our findings may be an alternative for environmental-,user-, and consumer-friendly for control of snail population control.

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