

Massuwan Pongpramoon 2009: Effect of Plant Extracts on Esterase and Glutathione -S-Transferase Activity in Egg of Golden Apple Snails (*Pomacea canaliculata* Lamarck). Master of Science (Zoology), Major Field: Zoology, Department of Zoology. Thesis Advisor: Associate Professor Suraphon Visetson, Ph.D. 127 pages.

This research deals with the effects of plant extracts, yam plant (*Dioscorea hispida* Dennst.), tea seed cake (*Camellia sinensis* (L)) and soapnut (*Sapindus emarginatus* Vahl.) on esterase and glutathione-S-transferases in various ages of the golden apple snail (*Pomacea canaliculata* Lamarck) eggs. The Soxhlet's extraction method using 95% ethanol as solvent was performed. The various egg ages, 1,3,5 and 7 days old were individually dipped into the various concentrated crude extracts for 5, 10, 15, 20 and 25 minutes and the evaluation of invitro enzyme study was done after exposure. The factorial experimental in CRD with 3 replicates was done following DMRT for their means different at $P = 0.05$. The 1 day old eggs exhibited 1.5-3.0 fold inhibited in esterase against 0.6-1.5 % w/v yam plant extracts. On the other hand, the 3- 7 day old eggs showed no significant difference of both esterase and glutathione-S-transferases activity. The tea seed cake at extracts 1.7-2.0 %w/v indicated 1.2-2.7 fold inhibited esterase but there was no significant difference in glutathione-S-transferase activity at $P=0.05$ against 1, 3, 5 and 7 day old eggs. In addition, the soapnut extracts, the 1-5 day old eggs showed no significant difference in esterase activity. However, the 7 days old eggs showed 1.5-2.9 fold reduced esterase activity against 1.5-2.0 % w/v soapnut extracts. Unfortunately, soapnut extracts indicated no significant difference in glutathione-S-transferase activity in all ages except in 7 days old eggs which is showed 3-4 fold elevation of this enzyme system. Finally, all extracts showed difference toxicity in terms of LC_{50} againsts adult stingless bees (*Trigona* sp) and fish. The yam plant extracts indicated LC_{50} of 1.54 and 0.93 %w/v at 24 and 48 hours after exposure, respectively while the tea seed cake extracts exhibited LC_{50} of 7.82 and 3.14 %w/v at 24 and 48 hours after exposure, respectively and soapnut showed LC_{50} of 3.77 and 2.44 %w/v at 24 and 48 hours after exposure, respectively. In addition, all extracts showed difference toxicity in terms of LC_{50} againsts fish. The yam plant extracts indicated LC_{50} of 0.017 and 0.014 %w/v at 24 and 48 hours after exposure, respectively while the tea seed cake extracts exhibited LC_{50} of 0.00069 and 0.00062 %w/v at 24 and 48 hours after exposure, respectively and soapnut showed LC_{50} of 0.0028 and 0.0026 %w/v at 24 and 48 hours after exposure, respectively.

Student's signature

Thesis Advisor's signature