

Chanatda Leenuwongphun 2008: Effects of Sweet flag Extracts (*Acorus calamus* L.) on Toxicity and the Levels of Esterase and Glutathione - S - transferase on the Brown Dog Tick (*Rhipicephalus sanguineus*). Master of Science (Zoology), Major Field: Zoology, Department of Zoology. Thesis Advisor: Associate Professor Surapon Visetson, Ph.D. 120 pages.

Effects of sweetflag extracts (*Acorus calamus* L.) on toxicity and the levels of esterase and glutathione - S - transferase on the brown dog tick (*Rhipicephalus sanguineus*). An extract using sweet flag rhizomes using 95% ethanol was trialed against nymphs and adults of the brown dog tick. A completely randomized design (CRD) with 4 replicates was used to analyse LC₅₀. The toxicity of sweet flag extracts showed LC₅₀ ca. 1.49% w/v. after exposure at 24 hours and after exposure for 36 hours was 1.13% w/v. for the brown dog tick nymph and LC₅₀ ca. 1.07% w/v. after exposure at 24 hours and after exposure for 36 hours was 0.86% w/v. for the brown dog tick adult. The enzyme activities of esterase and glutathione - S - transferase in the brown dog tick after 24 hours were induced after levels of sweet flag rhizomes were increased. Glutathione - S - transferase increased a litter when compared with control.

Sweet flag extracts reduced the amount of eggs and percent hatch of brown dog tick as levels of sweet flag extracts was increased. Sweet flag extracts at 30 percent was more repellent to the brown dog tick when compared with control.

The toxicity of sweet flag extracts showed LD₅₀ ca. 15.38% w/v. after exposure at 24 hours for *Mus musculus* and did not affect the eyes and skin of *Mus musculus*.

Student's signature

Thesis Advisor's signature

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