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TOXICITIES OF SOME MEDICINAL PLANTS

ON

Aedes Aegypti LINNAEUS AND Culex quinquefasciatus SAY

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## ABSTRACT

Out of 17 Thai medicinal plants tested, only 4 plant species were found to be toxic to mosquitoes, Aedes aegypti Linnaeus and Culex quinquefasciatus Say, under laboratory conditions at the mean temperature of  $25^{\circ} \pm 3^{\circ}$  C and relative humidity at  $80 \pm 10\%$ . Those 4 plant species were white pepper (Piper nigrum), garlic (Allium sativum), tobacco (Nicotina sp) and kaffir lime (Citrus hystrix).

The percentage mortalities of mosquito larvae varied with different plant species. The  $LC_{50}$  values of the 4 plant species studied showed that the toxicities of the crude extracts from the pepper and dry garlic were higher than the crude extracts from the tobacco and dry kaffir lime peel. The  $LC_{50}$  values of pepper crude extract on the second, third and fourth instar larvae of Ae. aegypti were 0.1094, 0.1461 and 0.4010 g/l, respectively; and on the second, third and fourth instar larvae of Cx. quinquefasciatus were 0.0822, 0.1099 and 0.1521 g/l, respectively. The  $LC_{50}$  values of dry garlic crude extract on the second, third and fourth instar larvae of Ae. aegypti were 0.1363, 0.1710 and 0.3503 g/l, respectively; and on the second, third and fourth instar larvae of Cx. quinquefasciatus were 0.1326, 0.1739 and 0.3079 g/l, respectively. The  $LC_{50}$  values of tobacco crude extract on the second, third and fourth instar larvae of Ae. aegypti were 0.5311, 0.7519 and 0.9177 g/l, respectively; and on the second, third and fourth instar larvae of Cx. quinquefasciatus were 0.4893, 0.5467 and 0.6119 g/l, respectively. The  $LC_{50}$  values of dry kaffir lime peel crude extract on the second, third and fourth instar

larvae of Ae. aegypti were 0.4831, 0.7856 and 0.9434 g/l, respectively; and on the second, third and fourth instar larvae of Cx. quinquefasciatus were 0.2923, 0.3469 and 0.6742 g/l, respectively.

Results indicated that the second stage of mosquito larvae, Ae. aegypti and Cx. quinquefasciatus was more susceptible to the certain plant crude extracts than the third and fourth stages. However, probit analysis showed that there was no significant difference between the larval mortalities of both species at 95% fiducial limits when they were treated against each of those plant crude extracts studied.

Biological observations indicated the nervous effect of the pepper and tobacco crude extracts on both mosquito species. No such activity was found on the mosquitoes treated with the garlic and kaffir lime peel crude extracts. The compound in garlic crude extract might interfere the metabolic function of the larval pigmentation, while the kaffir lime peel crude extract might act as an antifeedant to the mosquito larvae.