Mosquitocidal and antifecundity effects of coumarin and betulinic acid isolated from *Cassia siamea* (*Fabaceae*) stem bark chloroform extract on female *Anopheles stephensi* (*Diptera: Culicidae*)

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Abstract

Mosquito acts as vector for various pathogens that cause malaria, filariasis, schistosomiasis, Japanese encephalitis, and yellow fever. Mosquito control is the key measure to prevent spreading these diseases are still a major problem in the developing countries. The strategy against malaria in the world includes the destruction by chemical, physical or biological agent of larvae, adult mosquitoes and reducing the number of human mosquito’s contacts. In order to develop new tools to fight against malaria, the bark of *Cassia siamea* were subjected to phytochemical investigation, which led to the isolation of coumarin and betulinic acid. We conducted a chronic administration in the form of food from the chloroform extract of the coumarin and betulinic acid at the concentrations of 2000, 800 and 1600 ppm respectively, once every two days, for 21 days corresponding to the sporogonic cycle. The results have shown an efficiency of 100% mortality in the group of mosquitoes treated by coumarin on day 15, an efficiency of 90% mortality in the group of mosquitoes treated with betulinic acid at day 20, finally efficiency 71% mortality in the group of mosquitoes treated with the chloroform extract. The sporogonic cycle duration, was evaluated at 21 days. Coumarin and betulinic acid have reduced the fecundity of females mosquitoes half.

Keywords:

*Malaria; mosquitoes; plant; mosquitocidal; antifecundity*