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Studies of essential oil based anti - mosquito cream

Mosquito born diseases are still a major problem in tropics. Commercial mosquito repellents mainly contain high dosage of diethyltolumide and its derivatives. Recent studies highlighted that these synthetics have adverse effects on humans. Further to our studies in finding alternative methods for mosquito control, selected essential oils were assayed against vector mosquitoes with the aim of developing an anti-mosquito cream.

Cinnamon leaf, citronella neem and citral essential oils were tested for knockdown and mortality against *Culex quinquefasciatus*, *Anopheles tessellates* and *Aedes aegypti*. The bioassay followed the WHO standard method for adult mosquito susceptibility test. These essential oils were incorporated in to standard body formulation and the efficacy was evaluated in the field using human volunteers.

In susceptibility test, cinnamon leaf oil (2%, w/v) showed 100% knockdown and mortality against *A. tessellates* and *C. quinquefasciatus* but only knockdown (100%) was observed against *A. aegypti*. Citronella oil (2% and 1% w/v) was toxic (100% knockdown and mortality) only against *A. tessellates*. Neem oil (2%, w/v) had only 73.3% mortality against *A. tessellates* and *A. aegypti*. Citral (2%, w/v) showed 100% knockdown against all three tested and mortalities were above 77.0%. Results of field studies revealed that all four formulations have promising repellent activity and provided more than 80% protection against mosquitoes for 5h. Best protection was observed for formulation, containing a mixture of citronella and neem oil.

This study indicates that these repellents could be used as potential protective agents against mosquitoes.