

Formulation of mosquito repellent herbal cream using flower extract of *Tagetes erecta* (marigold) and evaluation of its *in vitro* mosquito repellent activity against *Aedes aegypti*, *Anopheles stephensi*, *Culex quinquefasciatus*

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The aim of the present study is to formulate mosquito repellent herbal cream and evaluate *its in vitro* mosquito repellent activity against *Aedes aegypti*, *Anopheles stephensi* and *Culex quinquefasciatus*. Oil in water emulsion based 5% w/w active ingredient cream was formulated by using fresh flower extract of marigold and observed for physical stability parameters (pH, appearance, washability and colour) for 45 days at room temperature. The mosquito repellent efficacy of the cream was tested by applying 1 g of herbal cream formulated on the dorsal hand area (25 cm²) of one person of the trained panel. The treated hand and untreated hand (negative control) were exposed to 100 caged, blood-starved, laboratory bred female mosquitoes of three species and repellency test was performed for 300 min. and numbers of mosquitoes sitting on the hand were counted at every 30 min. The formulated cream was found to be homogenous, semi-solid, washable and yellow colour and pH was in the range of 6-7. Total protection without sitting or biting of all three species of mosquitoes were recorded up to 180 minutes for formulated cream and percentage of repellency was calculated as 95.405± 6.042%. A commercial herbal cream was tested as positive control and it was protected from mosquitoes sitting or biting up to only 30 minutes and repellency percentage was 46.677± 41.335%. The results showed that the cream formulated with extract of *Tagetes erecta* fresh flowers had the potential mosquito repellent activity against *Aedes aegypti*, *Anopheles stephensi* and *Culex quinquefasciatus* bites.

Keywords: *Aedes aegypti*, *Anopheles stephensi*, *Culex quinquefasciatus*, *Tagetes erecta*, mosquito repellent

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