

Research Title	Research study of effective of mosquito repellent products, with mosquito <i>Ae. aegypti</i> resistant strain and susceptible strain of pyrethroid chemical groups
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The research will be conducted against mosquito repellent product standards sold in the market were approximately 30 product and chemical standards DEET in concentrations varying the mosquito *Ae. aegypti* strains resistant and. species susceptible to pyrethroid chemicals group. If there is a mechanism of resistance to the mosquito repellent DEET in a group of mosquitoes *Ae. aegypti* strains resistant to pyrethroid chemicals group. Prevention of mosquito products would be shortened compared to the *Ae. aegypti* mosquito species susceptible to chemical group consortia steroids. So, for a study to test the effectiveness of the action of insect repellent containing DEET main components of the mosquito *Ae. aegypti* strains resistant and susceptible strains pyrethroid chemical group. Under laboratory and duration of action of synthetic chemicals that can be repellent (DEET) in the ratio of concentrations. On the mosquito *Ae. aegypti* strains resistant and susceptible strains pyrethroid chemical group. Under laboratory The results are as follows: For commercial insect repellent spray made this study a total of 16 products, which are an important ingredient DEET is the main ingredient in different concentrations. Each product has been tested against mosquitoes figures for the period of time to prevent mosquito bites, which mosquitoes tested in this mosquito *Ae. aegypti* strains sensitive and resistant to pyrethroid chemicals group. The insect repellent Spray a period of time to prevent mosquito highest average of 6.5 (5.5 - 6.5) hours to mosquito *Ae. aegypti* species susceptible to chemical group pyrethroid and 6.0 (5.5 - 6.5). hours to mosquito *Ae. aegypti* strains resistant to pyrethroid chemicals group include Insect Block 95, which contains the chemical DEET at a concentration of 95% for a solution that is DEET mosquito repellent that standard. At a concentration of 95% as the duration of protection from mosquito bites an average of 7.0 (6.5 - 8.0) hours to *Ae.aegypti* mosquito species susceptible to pyrethroid chemical group and an average of 6.0 (6.0. - 7.0) hours to mosquito *Ae. aegypti* strains resistant to pyrethroid chemicals group. Products with a period of protection from mosquito bites to a minimum average of 1.5 (1.0 - 1.5) hours to mosquito *Ae. aegypti* species susceptible to pyrethroid chemicals group include Sketolene Lemongrass, replay.

John Spray, replay Lin spray formulations cold, Sketolene smell eucalyptus, Bell spray mosquito, Jango which 15% by the concentration of the chemical DEET are. concentration of 12%, 15% and 20% of each product. Time and mosquito 0.5 (0.5-1) hours to mosquito *Ae. aegypti* strains resistant to the pyrethroid chemicals in products Sketolene Lemongrass, Orange spray replay, replay Lin spray. Cool Formula The concentration of the chemical DEET at a concentration of 20% and a component Eucalyptus Oil 10%, respectively. For the solution of DEET mosquito repellent as the standard. At a concentration of 10%, 15% and 20% the same period in preventing mosquito bites an average of 2.0 (2.0 - 2.0), 3.0 (3.0-3.5) and 3.0 (3.0-3.5) hours, respectively. *Ae.aegypti* mosquito species susceptible to pyrethroid chemicals group and duration of protection from mosquito bites at concentrations above the mosquito *Ae. aegypti* strains resistant to pyrethroid chemical group with an average of 1.5. (1.0-1.5), 2.0 (2.0-3.0) and 2.5 (2.5-3.0) hours.

For insect repellent lotions available on the market of this study, a total of 14 products, which are an important ingredient DEET is the main ingredient in different concentrations. Each product has been tested against mosquitoes figures for the period of time to prevent mosquito bites, which mosquitoes tested in this mosquito *Ae. aegypti* strains sensitive and resistant to pyrethroid chemicals group. The insect repellent Type lotions with duration of anti-mosquito highest average at 4.5 (4 - 4.5) hours to mosquito *Ae. aegypti* species susceptible to chemical group pyrethroid and 3 (3-4) hours to mosquito *Ae. aegypti* strains resistant to pyrethroid chemicals group include REPEL Lotion by Boots, which contains the chemical DEET at a concentration of 50% solution of DEET in a repellent substances that standard. The concentration of between 50% as the duration of protection from mosquito bites an average of 6.0 (5.0-6.0) to *Ae. aegypti* mosquito species susceptible to pyrethroid chemicals group and time period to prevent mosquito bites. the concentration of the solution to the mosquito *Ae. aegypti* strains resistant to pyrethroid chemical group with an average of 5.0 (4.5-5.0) hours respectively for a period of time to prevent mosquito bites to a minimum. an average of 1 (0.5-1) hours to mosquito *Ae. aegypti* species susceptible to pyrethroid chemicals group include Bell mosquito lotion. The concentration of the chemical DEET at a concentration of 12% and duration of anti-mosquito 0.5 (0.5-1) hours to mosquito *Ae. aegypti* strains resistant to the pyrethroid chemicals in products including Sketolene dinner recipes. Sketolene Sensitive Formula boutiques, Bell lotion and mosquito repellent OFF Kids by the concentration of the chemical DEET at a concentration of 12% and 7.5% respectively as a component. For the solution of DEET mosquito repellent as the standard. The concentration of between

10-15% as the duration of protection from mosquito bites, which averages 2.0-3.0 (2.0-3.0-2.0-3.5) hours, respectively *Ae.aegypti* mosquito species that are sensitive to chemicals. The pyrethroid and duration mosquito bites at concentrations above the mosquito *Ae. aegypti* strains resistant to pyrethroid chemical group with an average 1.5-2.0 (1.0-2.0-1.5-3.0) hours respectively, in the study for efficacy against mosquitoes of standards containing insect repellent DEET is the main ingredient and sold in the market when compared with repellent mosquito standard DEET preparation in the same concentration which used in products placed on the market. For tested against mosquitoes *Ae. aegypti* strains resistant and susceptible strains pyrethroid chemical group. There mechanism of resistance to insect repellent DEET in a group of mosquitoes *Ae. aegypti* strains resistant to pyrethroid chemicals group. Duration of anti-mosquito repellent products or materials prepared and tested in time to prevent mosquito bites a period of decline. Compared with species of mosquito *Ae.aegypti* susceptible to pyrethroid chemical groups.