

PS-014. Essential Oils As Repellents In Insect Control

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The insects and arthropods are vectors for many disease like Dengue fever, Malaria, Yellow fever, Lyme disease and Zika virus infection. For many years people used different ways to protect themselves from these vectors. In the past people have been using plants in traditional ways to protect themselves against insects. In 1950s synthetic chemicals have been started to used like DEET(N,N-diethyl-m-toluamide) which is a very effective synthetic repellent against mosquitoes and ticks. However in recent years concerns over the use of DEET due to the cause of risk to human health and ecosystem have led scientists to look for natural repellent products. Essential oils are complex mixtures of volatile organic compounds produced as secondary metabolites in plants; they are constituted by hydrocarbons (monoterpenes and sesquiterpenes) and oxygenated compounds (alcohols, esters, ethers, aldehydes, ketones, lactones, phenols and phenol ethers). The major promising entomological use for EOs in human health arena are for repelling biting flies and ticks. Essential oils' repellent activity has been linked to presence of monoterpenes and sesquiterpenes. Among essential oil-producing plants, some genus such as *Cymbopogon* spp., *Eucalyptus* spp. and *Ocimum* spp. have been widely studied and studies shows essential oils effectively repel some species of mosquitoes in the genus *Culex*, *Anopheles* and *Aedes*. Although most of essential oils are not particularly toxic, some can cause skin irritation and allergies. Essential oils, when compared with DEET, due to their volatile nature, have a much lower level of a risk to the environment however due to also their highly volatile nature repellent activity and residual time of essential oils are shorter than DEET but use of other natural products in mixture, such as vanillin, could increase the protection time, potentiating the repellent effect of some essential oils.

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