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Effective mosquito repellent from a plant-based formulation

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Of all disease-transmitting insects, mosquitoes are regarded as the greatest threat because their presence is witnessed in nearly every type of climatic region of the world. They act as carriers of many diseases, such as malaria, dengue, etc. that can become life-threatening; hence, it is important that their population is kept under control. There are many chemicals that prevent mosquito breeding available in the markets. However, they tend to cause many complications both to the plants and human health. A great solution to this problem is the utilisation of mosquito repellents that are plant-based or bio-based as these products have a higher chance of being accepted by society. Plants, such as lemongrass (Cymbopogon citrates L.), neem (Azadirachta indica), tulsi (Ocimum sanctum L.), maddar (Calotropis procera), and Lantana (Lantana camara L.) are very well known to have medicinal applications. The essential oils present in these plants and/or the leaf extracts of these plants have a great ability to show mosquito repellence. Mosquitoes, in general, are attracted to the compounds, such as carbon dioxide and lactic acid that are present in the sweat that is produced by our body. The plant-based formulations work or show their effect by masking the sweat and the compounds present in it. Many of leaf extracts containing terpenoids, which are produced by the plants as secondary metabolites have therapeutic as well as toxic effects against various insects, and thus have many applications in various fields. The leaf extracts and essential oils from the different plants, such as lemongrass, tulsi, neem, maddar, Lantana, etc. provide beneficial activity against mosquitoes. Research shows that, when these are combined, they show a synergistic (cumulative) effect against mosquitoes, which is even more efficient and has the potential to effectively act as mosquito repellents that are purely bio-based. Further research is expected in these areas to develop a completive reliable plant-based product as a solution for mosquito problem.

Keywords: Mosquito repellent, Medicinal plants, Neem, Tulsi, Lantana, Lemongrass, Maddar, Bio-based, Plant-based mosquito repellent

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