Anti-mosquito Repellent of Nano-Practical Extraction from Frankincense Leaves (Nano Luban Product)

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ABSTRACT

In recent years, the incidence of mosquito-borne diseases such as Zika and malaria has increased significantly. The effectiveness of conventional insecticides used to control and treat various mosquito species has declined year by year, while their negative impact on human health and the environment remains a major concern. In this study, we investigate the potential of a synthesized nanomaterial extracted from frankincense (Boswellia) leaves using the Soxhlet extraction method with water as the green solvent. Chemical analysis of the extract identified alpha- and beta Boswellic acids as the main active compounds. Cytotoxicity analysis indicated that the LC_{50} concentration is 600 ppm. Acute toxicity testing (oral and dermal) classified the extract in Toxicity Category 5 (low toxicity), with an LD_{50} of 5000 mg/kg. Bioassay results demonstrated that the final product is capable of repelling mosquitoes with an efficiency exceeding 91%. The nanoscale formulation of frankincense leaf extract offers a promising, eco-friendly alternative for mosquito control—enhancing both public health and environmental safety compared to conventional chemical insecticides.

DOI: 10.21467/abstracts.8.6 ISBN: 978-81-998984-0-0 (eBook)