

**KARNATAKA STATE COUNCIL FOR SCIENCE AND
TECHNOLOGY**



R.V.COLLEGE OF ENGINEERING, BENGALURU-59

(Autonomous Institution Affiliated to VTU, Belagavi)



**DEVELOPMENT OF ECO-FRIENDLY PLANT BASED
MOSQUITO REPELLANTS**

PROJECT REPORT

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ABSTRACT

The mosquito repellents market in India is valued at 16 billion and is growing at a compounded annual growth rate of 15%. Commercial mosquito coil smoke has several adverse health effects on human beings as well as other animals such as skin and eye irritation, etc. In this context, many research works focused to develop herbal mosquito coils by extracting oils from the plants which can be used as creams and lotions. But since majority of Indian population uses mosquito coils in their homes there was a need to prepare an eco-friendly herbal mosquito coil. The objective of our work was to prepare an eco-friendly mosquito coil completely from organic materials which are either abundant or waste in our surroundings.

Three Plants namely Citronella grass (*Cymbopogon nardus*), Eucalyptus tree (*Eucalyptus globulus*) and Rosemary plant (*Rosmarinus officinalis*), Coconut husk as smouldering agent and Corn cob powder as the binding agent were selected. The coil was first optimizing for binding strength and harmful gas emission and then the coil was prepared using plants alone and with combinations using Taguchi's Design of Experiments.

The coil prepared was first subjected to physical tests including binding strength, burning duration, moisture content, harmful gas emission and mosquito repellence test was carried out using adult female *Aedes aegypti* mosquitoes. Results of physical properties testing showed that prepared mosquito coil showed longer duration of burning and less than half the amounts of harmful gas emission on burning and prepared mosquito coil had less binding strength compared to the commercial mosquito coil and repellence testing results showed that prepared mosquito coils take longer time to repel the mosquitoes compared to the commercial mosquito coil but our coils only either repelled or caused temporary numbness to the mosquitoes while commercial coil killed the mosquitoes in a short duration of time. The outcome of the project is the citronella mosquito coil which has better physical and repellence properties compared with the commercial mosquito coil. In this direction, further