



USE OF VARIOUS PLANT EXTRACTS AS HERBAL MOSQUITO REPELLENT SPRAY

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ABSTRACT

The present study is conducted to determine the mosquito repellent activity in some indigenous plants *Ocimum sanctum* (Tulsi), *Azadirachta indica* (Neem), *Vitex negundo* (Nirgudi) and *Eucalyptus globulus* (Nilgiri) which are known for insecticidal property. Whereas mixture of powder of leaves of these plants is used in 30:30:30:10 proportion respectively. Different concentrations of this mixture such as 5%, 10%, 15%, 20% and 25% are used to prepare ethanol extract. It is observed that 25% concentration is more effective. It is also observed that the smell of this repellent is pleasant and there is no any nausea or skin irritation. This extract can be used in preparation of repellent sprays and sticks to control mosquito.

KEYWORDS : *Ocimum sanctum*, *Azadirachta indica*, *Vitex negundo*, *Eucalyptus globulus* and mosquito repellent

INTRODUCTION

1. More than 40 percent of the world's population, in more than 100 countries is under the risk of infection.
2. Every year 2500 million people worldwide get infected with various mosquito born diseases.
3. Scientists had studied the insecticidal properties in the plants *Ocimum sanctum*, *Azadirachta indica*, *Vitex negundo* and *Eucalyptus globulus*.
4. Synthetic chemicals are hazardous to the environment and human health hence we have selected plants with insecticidal properties to prepare mosquito repellent.

MATERIAL AND METHODS

The selection of the plants was based on their local availability and their insecticidal properties. The selected plants *Ocimum sanctum* (Tulsi), *Azadirachta indica* (Neem), *Vitex negundo* (Nirgudi), *Eucalyptus globulus* (Nilgiri) were collected from local areas in two months August and September, 2018.

- The fresh leaves of the selected plants were collected, washed with distilled water, dried in shed and powdered.
- The dried powder of leaves of *O. sanctum*, *A. indica*, and *V. negundo* as 30 gram each and *E. globulus* 10 gram as total 100 gram powder was extracted in ethanol by Soxhlet method.
- The extraction was filtered and then filtrate was evaporated under reduced pressure yielding crude.
- The repellent extract was prepared with 5%, 10%, 15%, 20% and 25% concentrations in 70% ethanol.
- These concentrations were tested in the closed glass jars against mosquitoes for 30 min. Twenty mosquitoes were used in each jar. Then percentage mortality was observed.

Observation Table

Concentration %	Time of Exposure in Hrs	Mortality %
5	6	10
10	6	20
15	6	60
20	6	75
25	6	100

RESULT AND DISCUSSION

Different concentrations such as 5%, 10%, 15%, 20% and 25% were used in different glass jars and 10%, 20%, 60%, 75% and 100% mortality of mosquito was observed at different concentrations after 30 min. of exposure. From these observations it is found that 25% concentration of mosquito repellent spray is more effective and shows 100% mortality. The spray was reported to be eco-friendly and not toxic to human being.

Similar type of results were observed by Jang *et al.* (2002), Cavalcanti *et al.*, (2004), Arunpandiyam (2011), Marimuthu and Rajamohan (2011) and Injal *et al.* (2017) also reported that the repellent sprays were good insect repellents and excellent results were found against mosquitoes.

In our results mortality is due to insecticidal property of the plant extract. Hence the repellent prepared by extract of leaves of plants *O. sanctum*, *A. indica*, *V. negundo* and *E. globulus*. Found more effective due to there synergistic action in the control of mosquito. It is also found that this repellent is nausea and irritation free.

CONCLUSION

1. Herbal mosquito repellent spray prepared from the local plants is a best source of protection from mosquitoes in college campus.
2. There is no skin irritations observed during it's a spray time.
3. The study revealed that this mosquito repellent plant extract has no side effect on human health. Besides this, the repellent is very cheap and can be easily prepared by common man.
4. Hence the herbal spray is a promising product to protect everybody from mosquitoes and disease caused due to bite of mosquitoes.

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