

# An Automated Herbal Mosquito Repellent: A Granted Patent Case Study

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## ABSTRACT

Herbal formulation has long lasting history of usage for the benefits of human race. Indian patent system prevents granting monopoly rights for traditional knowledge. Despite this there are several inventions which are related to herbals and are patentable. In this paper I have discussed an Indian granted patent which correspond to herbal formulation for the repulsion of mosquitoes.

**KEYWORDS:** Neem, Tulsi, Mosquito repellent, herbal, Clove

## 1 INTRODUCTION

Herbal formulation has long lasting history of usage for the benefits of human race. Indian patent system prevents granting monopoly rights in respect of traditional knowledge as per section 3(p) of the Patents Act, 1970.

Section 3(p) of the Patents Act, 1970:

“an invention which in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components”

Despite the above clause there are several inventions which are related to herbals and are patentable. Use of mosquito repellent has been increased but these repellent exposes humans to toxic chemicals which results in respiratory diseases. In this paper we have discussed a granted Indian patent (IN201811013164) related to herbal formulation for repelling mosquitoes. The invention relates to provide a method to repel mosquitoes using a herbal formulation to minimize exposure of toxic chemicals to humans.

## 2 IN201811013164 (AN AUTOMATED HERBAL MOSQUITO REPELLENT)

Indian patent number IN201811013164 discloses a method for sensing and capturing mosquitoes in a given area by an automatic spray herbal mosquito repellent. The automated mosquito repellent senses density of mosquitoes and then sprays regulated amount of herbal mosquito repellent solution. The herbal mosquito repellent also purifies the air.

The formulation was prepared by mixing neem seed extract (20 mL), tulsi oil (20 mL), turmeric oil 20 mL, orange peel oil 20 mL, and powdered clove (20 gm). The essential oils of tulsi, turmeric, and orange peel were prepared by hydro-distillation process. Neem seed extract was prepared by maceration with ethanol at room temperature after defatting with hexane.

The number of mosquitoes were calculated by using ARM based arduino sensors which works on the principle of multiple scattering theory. Amount of the herbal mosquito repellent solution released through the device is calculated based on the number of mosquitoes.

The method consist of steps of sensing the density of mosquitoes using SNR, sending signal to the electric capacitor attached, generating electric current by the capacitor, which in result increases temperature of the heating coil, which in turn increases temperature of the herbal mosquito repellent solution, which in turn produces more fumes, passing of fumes through vacuum tubes attached with the sensor, and spreading of fumes in the sensed area.

The method has advantages of being less toxic, more eco-friendly, and targeted approach to repel mosquitoes.

In the First Examination Report for the said patent the non-patentability under section 3(k) was objected.

Section 3(k) of the Patents Act, 1970:

“a mathematical or business method or a computer programme per se or algorithms”

To overcome the objection raised under section 3(k) the applicant submitted that the claimed subject matter is of technical nature as it encounters a technical solution wherein the technical solution provides technical effects. They also submitted that the invention is not a program per se, algorithm or software application.

### 3 SUMMARY

In a nutshell the invention discloses a safe and effective method for targeted repulsion of mosquitoes. The method cause less exposure of mosquito repellent solution to humans as generation of fumes occurs only whenever a high density of mosquitoes is detected.

### 4 REFERENCES

- [1] IN201811013164, A METHOD FOR SENSING AND CAPTURING MOSQUITOES BY AN AUTOMATED HERBAL MOSQUITO REPELLENT, Pub. Date. 18-Oct-2019.