Chapter VI: SUMMARY AND CONCLUSIONS
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The thesis gives an account of the phytochemical analysis and mosquito repellent activity studies in some medicinally important plants of family Cucurbitaceae. These plants are found to be growing anywhere on the roadside and some are been cultivated. In the present investigation four medicinally important plants are selected on the basis of their dominance in the ecosystem.

The four species of Cucurbitaceae which are selected are as follows:

2. Cucumis melo Linn.
3. Lagenaria siceraria (Mol.) Standl.
4. Trichosanthes tricuspidata Lour.

The thesis is incorporated in seven headings.

Chapter-I. is introductory, gives the definition, meaning and different terms used mosquitocidal activity. It also gives different interactions involved in the ecosystem. Besides, it also contains brief history of various diseases caused by mosquitoes, its effects, symptoms and necessary action. It also gives an idea about the progress occurred from 19th and 20th centuries in this field, information of different routs by which plant used as mosquito repellent and their categories. At the end of the chapter it gives applied aspects, scope and future strategies of plant product used as insecticidal, which will help for the farmers to cultivate new crop. The use of green plants or their products has been effective in controlling several plant pathogens. Insecticides, despite effective in controlling many insects also pollute the environment, hence alternative method might be the use of crop residues as mulch to control mosquitoes and make human beings free from various diseases caused due to mosquito. This information will be helpful in exploring the new source of biocontrol.
Chapter-II deals with previous literature on mosquito repellent research of the studied plants at national and international level. Review of literature reveals that the mosquitocidal studies of the above plants have remains unexplored. The literature available on these plants is mostly pertaining to the distribution, taxonomy and medicinal uses and very little about its chemistry and mosquitocidal activity.

Chapter-III describes the material and methods used. For the present study different types of aspects are carried out, such as seed germination, larvicidal bioassay, root zone soil analysis and phytochemical studies are also described here. Lastly the HPTLC techniques are used for the identification and confirmation of specific phytochemical present in the plant parts are described here.

Chapter-IV incorporates descriptive account. It illustrates morphology of study plants and their medicinal and other uses, if any.

Chapter-V covers the results and discussions. From the observations, results are interpreted and are discussed in this chapter. However, Larvicidal bioassays confirmed that these plants clearly demonstrate an effect (mosquitocidal effect) on two mosquito larvae species *Culex quinquefasciatus* and *Aedes aegypti*. Differential degree of inhibitory effects indicated that all plant parts might have different quantities of inhibitory substances with varied chemical nature. Various types of primary as well as secondary metabolites have been studied and are confirmed with the help of phytochemical tests. In the present investigation three chemical constituents are identified and confirmed with the help of HPTLC techniques from the fruit, stem and leaves of studied plants by using authentic samples. Cucurbitacin I was identified and confirmed from fruit, stem and leaf of *Lagenaria siceraria* and *Trichosanthes tricuspidata* and stem and leaf of *C. callosus*. Coumarin was also identified and confirmed from leaf of *C. melo*. β-sitosterol was identified and confirmed from fruit, stem and leaf of *C. callosus, C. melo, Lagenaria*
siceraria and Trichosanthes tricuspidata. With the help of authentic sample, Terpenoids- Menthol, Saponin and Steroids- corticosterence were identified and confirmed in fruit, stem and leaf of all four plants respectively.

the works done has been summarized and in the last references to the literature cited are acknowledged.
FUTURE SCOPE:

Selected plants very important to treat. Offers a size to reduce the ill-effects of modern agricultural practices such as pesticides are present that cause environmental pollution, contamination of drinking water, human and animal health risks, the remains of the food chain and the development of insecticides and medicines / no insects in agroecosystems. These may be using techniques to win the allelopathic, and that’s why it gives reason to sustainable agriculture and maintenance of a clean environment to our descendants in the future.

Phytochemical analysis of the four plant shows the presence of starch, protein, tannin, saponin, flavonoids and alkaloids. On the basis of phytochemical analysis, quantity test is done with the help of HPTLC, and it was proved correct with a sample such as Cucurbitacin, DIHYDRO, β-sitosterol, Terpenoids-menthol, saponin and corticosterence Steroids- were identified and confirmed in fruit, stem and leaf all four plants, respectively. The centers of these chemical in the respective plant parts of the plants studied reduces the degree of their phytotoxicity. The course and the results indicated that, the mosquito repellent and mosquitocidal activity is part of the plant studied (s) for these chemicals phytotoxic. These plants can be used as a natural mosquito repellent. It can be used as a repellent home to kill rats, mosquitoes, etc. analyasis phytochemical can be used in multidisciplinary research. Research is currently being conducted in various Agricultural and sciences Biological viz. Agroforestry and Forestry, Agronomy, Biochemistry, Biotechnology, Botany, Chemistry, Ecology, Entomology studies, Fresh Water Biology, Genetics and Plant Breeding, Horticulture, Limnology, Microbiology, Nematology, Plant Pathology, Soil Science, Vegetable Crops, Zoology etc. phytochemicals are the treatment of important people and phytotoxic insects and pests
It is used as herbicides, insecticides, nematocides, fungicides and growth regulators (Einhellig, 1995). The study has been busy with roles in allelopathy in agriculture, forestry, phytopathology, the patterns of vegetation, algal sequence, a sequence of old-field and the prevention of seed decay before germination (Rice, 1979). The recommendations have been made to conduct a more thorough investigation of the effect of phytochemicals on mosquito growth dynamics and physiological process during the research-planning conferences held in two United States in 1971 and in USDA, 1977.
RECOMMENDATION

1. To conduct survey and find some medicinally important plants showing toxic potential and select four dominant plant species of family Cucurbitaceae from the agriculture field, fallow lands, especially along roadsides and dumped fields of Pune and Satara district of Maharashtra State.

2. To screen the toxic potential chemicals from selected plant species by using following standard procedure of laboratory bioassay.

3. To carry out the bioassay of selected plants such as, phytoextracts, root exudation, larvicidal bioassay.

4. To prepare crude extraction of mosquitocidal from selected plants.

5. To test the crude extracts on selected mosquitoes species.

6. To investigate the phytochemicals from the selected plant species by using standard phytochemical methods, which includes HPTLC profiling and analysis.

7. To isolate and identify the potential mosquitocidal by using HPTLC technique.

8. These plants can be used as natural mosquito repellent.

9. It can be used as arepellent in the household to kill mosquitoes, mice, etc.

10. This can help to farmers to cultivate the wild cucurbitaceous plants, which will be a new source of income.
**LIMITATION**

Now a day’s many people used natural repellent for mosquito control because they are prepared by biological materials. It is better compared to the harmful chemicals like DEET. It is well to use a natural repellent which can make you unattractive in the eyes of mosquitoes. These mosquitoes can also unattractive in the eyes of a natural repellent that is good for use (Curtis, et al., 1989).

However, the most commonly used insect repellents are synthetic chemicals that mostly have contained Deet (N, N-diethyl-3-methylbenzamide) in their formulations. Although Deet is an effective repellent against a broad spectrum of insects, however there are disadvantages associated with the use of Deet, which stem principally from its activity as a solvent of paints, varnishes, and some plastic and synthetic fabrics. There have also been concerns over toxicity of Deet (Liu, et al., 1987 and Anonymous, 2002).

It is more expensive; To maintain full protection requires more frequent re-application

However, if it is applied, will produce skin rashes, because 5. on the skin can not be applied directly.

Essential oil produced killed in their success may be short-lived; Because they can disrupt even more to maintain perfect safety may require frequent re-application.

Many preparations are certain insect repellent that is generated from natural resources that are available. Act as natural insecticides kill. Lemon eucalyptus essential oil, lemongrass oil, garlic, neem oil Peppermint Oil, Stegomyia aegypti against Solanum villosum berry juice.
**Conclusion.**

The thesis gives an account of the phytochemical analysis and mosquito repellent activity studies on four medicinally important plants of family Cucurbitaceae. The overall result conclude that,

1. All four plant species are medicinally important.
2. Phytochemical analysis of four plant species shows the presence of starch, protein, tannin, saponin, flavonoids and alkaloids.
3. On the basis of phytochemical analysis, quantity test was carried out with the help of HPTLC, and it was proved with authentic sample such as Cucurbitacin I, Coumarin, β-sitosterol, Terpenoids-Menthol, Saponin and Steroids-corticosterence were identified and confirmed in fruit, stem and leaf of all four plants respectively.
4. However, all the above said phytochemicals are medicinally important to human beings and phytotoxic to insects and pests.
5. The presences of these chemical compounds in the respective plant parts of studied plants were well correlated with the degree of their phytotoxicity.
6. These studies and results indicated that, the mosquito repellent and mosquitocidal activity exists in the studied plant part(s) are because of these phytotoxic chemicals.
7. These plants can be used as natural mosquito repellent.
8. It can be used as a repellent in the household to kill mice, mosquitoes, etc.