Chapter-VII

Summary

SUMMARY

Mosquitoes belong to Order Diptera of Class Insecta containing 3500 described species all over the world. The mosquitoes are characterized by small sized delicate and slender bodied insects, covered with hairs and scales. They are black or brown often spotted white and have piercing and sucking type of mouth parts for sucking the blood of human and other animals or cell sap of plants. The larvae of mosquitoes are elongate wrigglers and aquatic in habitat.

Southern Maharashtra have rich biodiversity of mosquitoes since it is characterized by several kinds of water bodies like rivers, dams, canals, diches and heavy rainfall which favours mosquito breeding in the region. Therefore, southern Maharashtra have been selected for the present study.

The thesis has been divided into seven chapters, first chapter is devoted for general introduction that embodies characteristic of southern Maharashtra, importance of biodiversity of mosquitoes and review of literature.

Second chapter deal with review of literature. Third chapter provides materials and methods. Materials and methods adopted for mosquito collection, observation and preservation. The mosquitoes have been collected with the

help of suction tube. The larvae were reared in the laboratory for collection of adult mosquitoes. Collected mosquito fauna have been described by preparing slides of different body parts and identified by consulting appropriate literature (Barraud, 1934 and Rao 1984). Survey of mosquitoes has been made by visiting and collecting mosquitoes from the study spots at 15 days interval. Distributional records were made by spots observation of mosquitoes at different study areas. Check-list of mosquitoes have been prepared with the help of availability of mosquito species in the study region and by consulting literature.

Fourth chapter embodies the taxonomical details of mosquitoes. In all 21 species of mosquitoes have been described, out of which 17 were newly described and 4 species redescribed. The newly described species refers to *Anopheles atpadi* sp.nov., *Anopheles akuluji* sp.nov., *Anopheles sagareshware* sp.nov., *Anopheles karmalae* sp.nov., *Anopheles mirajensis* sp.nov., *Anopheles ajarae* sp.nov., *Aedes khanapuri* sp.nov., *Aedes rhadhanagari* sp.nov., *Aedes tasgaonsis* sp.nov., *Aedes magalvedhi* sp.nov., *Culex solapurensis* sp.nov., *Culex krishnai* sp.nov., *Culex chandrabhagi* sp.nov., *Culex rankali* sp.nov. *Culex mahalaxmi* sp.nov., *Culex kalambae* sp.nov. and *Culex sangolensis* sp.nov. While 4 species namely *Aedes albopictus, Aedes*

vittatus, Culex tritaeniorhynchus and *Anopheles subpictus* have been redescribed.

Fifth chapter is devoted for seasonal abundance from southern Maharashtra. In all 48 species of mosquitoes have been reported from southern Maharashtra including newly described species in the text (17). Out of 48 species reported, 12 species were rare in the region.

The chapter sixth deals with conclusion. Biodiversity of mosquitoes is one of the important aspect of medical science which is directly related to human diseases. Mosquitoes cause diseases like Malaria, Filariasis, Japanese Encephalitis, Dengue and Chikungunya etc. Hence, in the present study taxonomy of mosquitoes have been studied from southern Maharashtra. Several kinds of water bodies such as rivers, dams, canals, ponds, diches and heavy rainfall favoured breeding of mosquitoes in the region. The increased heavy rain of recent year has also increased the problem of mosquito born diseases like Dengue, Malaria, Chikungunya in the region. In southern Maharashtra following vector species prominently noticed, *Anopheles stephensi,Anopheles culicifacies, Culex tritaeniorhychus, Culex vishnui, Aedes egypti,* and *Aedes albopictus*. Their ecofriendly control measures are extremely essential for preventing diseases

which they spread. At this juncture no information is available on new species described in the text whether they are transmitting any diseases to human or other animals. Hence, they should be monitored with respect to disease transmitting behaviour as a avenue for future research.

Seventh chapter represents the summary of thesis while, eighth chapter refers to bibliography.

The thesis has an appendix of research papers published in journals (2), accepted in journals (1) and presented (5) and accepted (5) in Conferences / Symposia / Workshops etc.