

SYNOPSIS

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"ICHNEUMONID PARASITES (HYMENOPTERA :INSECTA)
OF SOUTHERN MAHARASHTRA"

Losses to national economics resulting from insect damage to agricultural products are enormous. Every country makes computation every year but most of them have been based on the damage caused by one or two pests on a given crop during one season. Although all the pests are not abundant every year, yet the collective damage is much more than ten percent. Recent reports have indicated even 20% loss due to stemborers. Further, this loss is increased since the new high yielding varieties are more susceptible to pests. The greater use of fertilizers promote greater susceptibility in many crops to various pests (Sree Ramulu, 1979). The introduction to new crops likes Soybeans , Sunflower, sugar beets, and many summer crops have resulted in their acting as alternate hosts for a number of major and minor pests. The actual loss in yield can not be calculated precisely, though it is likely to be an alarming figure.

Agriculture and agrobased industries are vital for the sound economic growth and employment generation and

ultimately for many sided rural development in our country. Crop pests are causing damage annually to the tune of about Rs. 5,000/- crores. Insect pests are attacking each and every stage of crop in fields as well as in stores. Since World War II various pesticides are under practice. It is now known that chemical control of pests can satisfy only a short term need and temporary relief. The ultimate object of insect pest control is to reduce the extent of pest damage. A wide variety of chemical control measures have been used to minimise the damage. In certain cases, the measures taken to control major pests have boomed ; since some of the minor pests have now become major pests. Resistant strains of pests and many problems of hazardous insecticide residues in food, water and air have led to think on other safe and economic control majors.

Thinking same view, the Government of India have formed a high level task force with Dr. S. Jayraj, Vice-Chancellor, Tamil Nadu Agricultural University (TNAU) as chairman to make recommendations for research and development on biological control for the whole country in order to develop sound integrated pest management strategies with emphasis on biological control and to reduce the over dependence on insecticides causing many problems.

Biological control measures in a broad sense include not only the use of natural enemies (parasites, predators and pathogens), but also other techniques such as the introduction of artificially sterilized individuals into natural populations and the growing of resistant plant varieties. Natural control (Classical biological control) often achieved by the use of parasites, predators and pathogens from the same source from which the pest themselves originated. This control includes a search for and detailed biological and ecological studies of natural enemies in the native distribution range of the pest. Biotic agents are key mortality factors in integrated pest control. Since biological control is target-specific and economical. It is an ideal input for IPC.

It is now generally accepted that great care needs to be exercised when attempting to control a pest. It is therefore, vital that all the species involved are accurately identified and their roles understood before any attempt is made to alter the delicate balance of ecosystem. Studies on the taxonomy and other aspects of entomophagous insects can provide the basic information for undertaking biological control programme effectively.

The parasitic hymenoptera are the most important group of entomophagous insects utilised in biological control of insect pests. Their great diversity and high levels of parasitism that they often inflict on host populations have made parasitoids popular subject.

The Ichneumonidae is one of the largest of all animal groups. Hardly, 15% of ichneumonid species are known today. Due to parasitic habit they destroy pests and check the pest-population. Very little is known about ichneumonids from Southern Maharashtra. This work will increase knowledge of ichneumonids from Southern Maharashtra.

This dissertation deals with the taxonomic studies on parasitic hymenoptera of the family ichneumonidae. It is based on the collections of the ichneumonids and their cocoons made by me and Dr. K.S. Heble during 1987 to 1989. Few of them were reared in the laboratory.

This work includes seven species of six genera belonging to five tribes and four subfamilies of ichneumonidae. This contains the description of five new species and redescription of two known species. In

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In addition one paper in conjugation with Dr. K.S.Heble and Prof. V.G.Kshirsagar is appended.

Out of the new taxa studied, genus Genotropis Townes known from Philippines is recorded for the first time from India (Maharashtra). The genus Rothneyia Cameron native of Java and India (Assam and Uttar Pradesh), is recorded for the first time from Maharashtra.

I. Subfamily Ephialtinae

i. Tribe Ephialtini

1. Xanthopimpla Saussure is studied and this includes redescription of two species

X. honorata honorata (Cameron)

X. punctata Fabricius

II. Subfamily Gelinae

i. Tribe Gelini

Subtribe Rothneyiina

Under this subtribe one genus is studied.

2. Rothneyia Cameron

R. browni sp. nov. is described and

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recorded for the first time from the
Maharashtra.

III. Subfamily Mesosteninae

i. Tribe Goryphini

Under this tribe one genus is studied

3. Goryphus Holmgren

G. mirajensis sp. nov. is described.

IV. Subfamily Porizontinae

i. Tribe Compoplegini

Under this tribe one genus is studied

4. Charops Holmgren

C. rugosopunctatum sp. nov. is

described. This is reared on Achaea

Janata Linn. (Lepidoptera)

ii. Tribe Porizontini

In this two genera are studied.

5. Diadegma Foerster

D. striatopunctata sp. nov. is described.

6. Genotropis Townes

G. sangliensis sp. nov. is described and recorded for the first time from India.

Appendix to the dissertation contains a paper entitled "Last instar larva of Xanthopimpla stemmator Thunberg (Hymenoptera : Ichneumonidae) a pupal parasite of jawar stem borer", read in late Dr. M.H.Jagadale Memorial, Link Symposium held at A.C.S. College, Miraj (Sangli) on 24th August, 1988 by Dr. K.S.Heble, V. G.Kshirsagar and D.G.Patil.