

SYNOPSIS

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The world of insects is immense. At present these are reckoned to be over 9,00,000 named species, a staggering figure which means that insects account for 3/4 of living species in the animal kingdom and 1/2 the species of all living things/organisms. Entomologists believe that even now after some 250 years of systematic study it represents only quite a small fraction of insects species that actually exist.

Agriculture and agro-based industries are vital for the economic growth and employment generation, and ultimately for mansided rural development in our country. Crop production is very much hampered by the pest which cause damage annually to the tune of about Rs. 5,000/- crores (Rajagopalan, 1987). This loss needs to be avoided to increase and stabilise the production of crops.

At present, plant protection has occupied a special position in agriculture in India. As in many advanced countries, after World War II, we have also been greatly depending on pesticides, for control of pests. In India use of insecticide is about 80% among the total pesticides, while the globe share is about only 35%. The pesticides have certainly contributed to minimise yield losses and increase the productivity; thus making

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India to emerge as an exporting country of many agricultural commodities. However, their continued usage over last four decades had led to many problems such as residues in soil, water, air, food and fodder, biomagnification in food chain, phytotoxicity, adverse effect on non target organisms and development of resistance in pests to pesticides.. Another hazard observed recently is the induction of resurgence of target and non target pests by certain pesticides. Chemical pesticides are no longer the cheap and effective way to wage war on insect pests. Their cost has multiplied by as much as 2,000 times in about 30 years.

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 the ecosystem. Biological ( natural ) control of pests is safe and economic measure against pests. It also maintain<sup>s</sup> the balance of ecosystem.

The parasitic Hymenoptera, particularly the Ichneumonidae, <sup>is</sup> are the most important group of entomop<sup>h</sup> as insects utilised in the biological control of ins<sup>u</sup> pests. Studies on the taxonomy, biology and

other aspects of entomophagous insects can supply the basic information necessary for undertaking biological control and for its effective operation. The family Ichneumonidae is one of the important, largest group of animals. It is estimated (Townes 1969a) that there are about 60,000 species in the world fauna of which about 16,000 species occur in the Oriental region. Hardly fifteen percent of these are known today. Due to parasitic habit, Ichneumonids destroy a large number of economic insect pests and check the population of pests, thus, help actively in natural balance. Very little is known about Ichneumonid fauna from Western Maharashtra, rich in agricultural production and green vegetation. This is first attempt for the study of Ichneumonids from this region. It will increase our knowledge of taxonomy.

This dissertation deals with the taxonomic studies on parasitic hymenoptera of the family Ichneumonidae. This work is based on the collections of the Ichneumonids and their cocoons made by me, D.G. Patil and Dr. K.S. Heble during 1983 to 1988. Some of them are reared on their hosts in laboratory.

This deals with seven species of six genera belonging to four tribes and three subfamilies of Ichneumonidae. This contains description of four new species and redescription of three known species.

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Out of the new taxa studied, genus Gambrus Foerster known only from the Holarctic region is recorded for the first time from the Oriental region (India). The Indian genus Chlorocryptus Cameron, native of Assam and Sikkim, is discovered for the first time from Maharashtra.

I) Subfamily --- --- Ephialtinae  
 Tribe --- --- Ephialtini

(1) Xanthopimpla Saussure is studied and this includes redescription of two species :

i) X. Stemmator (Thunberg)

ii) X. flavolineata (Cameron)

II) Subfamily --- --- Gelinae  
 Tribe --- --- Gelini  
 Sub Tribe --- --- Chiroticina

Under this subtribe two genera are studied.

(1) Paraphylax Foerster

i) P. psychitus sp. nov. is described. This is reared on caseworm. (Psychidae)

(2) Chirotica Foerster.

i) C. willingdoni sp. nov. is described.

Tribe --- --- Mesostenini

Subtribe -- --- Agrothereutina

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(1) Gambrus Foerster

i) G. sangliensis sp. nov. is described and recorded for the first time from the Oriental region.

Subtribe --- --- Baryceratina

(1) Chlorocryptus Cameron

i) C. ganeshii sp. nov. is described and recorded for the first time from Maharashtra.

III) Subfamily --- --- Banchinae

Tribe --- --- Lissonotini

(1) Under Syzeuctus Foerster, S. zanthorius Cameron is redescribed.