MATERIAL AND METHODS

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The present study is based on the exploration of Ichneumonid parasites, along with cacoons and hosts collected personally during 1989-91, and bulk of the material used in this work came from Dr. K. S. Heble. Entire collection was made from Sangli district, Maharashtra, India during the months August, September and October. The visited areas were not explored by earlier workers. The specimens were collected from fruit trees, on weeds. cotton, soyabean, sunflower etc. The collected vegetables, specimens were in the form of cocoons, parasitized/unparasitized larvae, pupae and adults. The collected specimens were reared in the Laboratory. Insect nets were used to trap the Ichneumones. The areas were explored in morning and evening. The adults were killed in the killing bottles and pinned. The pinned specimens were dried and kept in the insect store boxes and labelled multi data. After sorting the insects, antannae, wings and legs were mounted on slides in D.P.X. and labelled respectively.

The important characters for the taxonomic study of ichneumonids were studied out with the help of binocular and

and monocular microscopes. Figures were drawn with the help of monocular camera lucida. Comparative measurements were taken with oculometer in monocular microscope. Body length of measured by monocular oculometer and also specimens were calculated from the figures drawn by camera lucida using scale. All the measurements were made and recorded in milimeters.

Monumental volumes of Townes "The Genera of Ichneumonidae" (Part I to III, 1968) were consulted for the generic treatment and for species treatment "A catalogue on Indo-Australian Icheneumonidae" by Townes, and Gupta (1961) was referred. Along with these, the recent works on some genera containing almost all details viz. Ichneumonolgia Orientalis (Part III) Jonathan and Gupta (1973) Part IV, Gupta and Gupta (1977) were also followed for identification of the species.

Visits were made to the library of Shivaji University, Kolhapur for the consultation of Litrature. Some of the literature was also collected from library of Willingdon College, Sangli and from INSDOC, Bangalore.

The terms used for the description of ichneumones body structure in the dissertation follows that of Townes (1969). Figure 2-5 explains the detail characters of various body parts that are important for the taxonomic study.







Fig. 2.



Fig.3.



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Fig.5.





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Fig.8.



Fig.9.



Fig. 10.

FIGURE 2

HEAD OF AN ICHNEUMONID (Front and Rear View)

	1.	Vertex	10.	Frontal Orbit		
	2.	Frons	11.	Facial Orbit		
	3.	Face	12.	Temporal Orbit		
	4.	Cheek	13.	Occiput		
	5.	Clypeus	14.	Post Occiput		
6.	6.	Grove between face and clypeus Clypeal Fovea Labrum 10, 11, 12 Orbit Vertical Orbit	15.	Foramen magnum		
	_		16.	Occipital Carina		
	7.		17.	Genal Carina		
	8.		18.	Oral Carina		
	9.		19.	Temple		
	9.					

FIGURE 3

THORAX OF AN ICHNEUMONID (Side View)

Areas :

- 1. Median lobe of mesoscutum 1 and 2 mesoscutum
- 2. Lateral lobe of mesoscutum
- 3. Scutellum
- 4. Post scutellum
- 5. Hind margin of metanotum
- 6. Tegula
- 7. Subtegular ridge
- 8. Collar
- 8, 9 and 10 Pronotum
- 11, 12, 13 mesopleurum (mesepimeron)
- 12. Speculum
- 13. Mesepimeron
- 14. Upper division of metapleunum
- 15. Metapleurum (lower division metapleurum)
- 16. Juxtacoxal area
- 17. Propleurum
- 18. Prepectus
- 19. Mesosternum
- 20. Front Coxa
- 21. Middle Coxa
- 22. Hind Coxa
- 23-28 Propodeum

23. First lateral area

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- 24. Second lateral area
- 25. Third lateral area
- 26. First pleural area
- 27. Second pleural area
- 28. Third pleural area
- 29. Propodeal spiracle

Carinae & Grooves :

- A. Notaulus
- B. Epomia
- C. Prepectal carina
- D. Mesopleural Fovea
- E. Mesopleural suture
- F. Sternaulus
- G. Post pectal carina
- H. Juxtacoxal carina
- I. Submeta pleural carina
- J. Pleural carina
- K. Lateral longitudinal carina
- M. Basal transverse Carina
- N. Apical transverse Carina
- O. Propodeal apophysis or Crest.

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FIGURE 4

WINGS OF ICHNEUMOID (A : Fore wing; B : Hind wing)

Veins

			FORE WING			HIN	ID	WING
AB	:	:	Costa	ab	:	Costel	la	
CD	:	:	Subcosta	cde	:	Subcos	ste	lla
EFG		:	Metacarpus	ef	:	Metaca	rp	ella
HIJF	:	:	Radius	dgh	:	Radiel	la	
KLMN	10	:	Cubitus	jkl	:	Cubite	lla	i
PQRW	1	:	Discoideus	mn	:	Discoidella		
СР	:	:	Medius	kg	;	Interc	ubi	tella
UV	:	:	Submedius	if	:	Medie	lla	
VWX	1	•	Brachial	ор	:	Subme	die	ella
BEH	:	:	Stigma	pq	:	Brachi	iel	la
DP	:	:	Basal vein	bh	:	Basal	ha	mulus
IL	:	:	First intercubitus	dh	:	Distal	h	amuli
JN	:	:	Second intercubitus	rs	:	Axillu	s	
QL	:	:	Discocubitus	jmp	:	Nervel	llu	S
К	;	:	Ramulus					
QK	:	:	First recurrent vein					
MS	:	;	Second recurrent vein					
Y	:	:	A bulla					
PV	:	:	Nervulus					
QRW	:	:	Postnervulus					
			C	ells				
1	Radi	al	cell	11	Апа	l cell		
2	Medi	ia]	cell	12	Cos	tellan	се	11
3	Disc	oc	ubital cell	13	Med	liellan	Ce	ell
4	Areo	le	t	14	Med	iiellan	CE	ell
5	Thir	d	Cubital cell	15	Cut	oitellan	С	ell

6

7

8

9

10.

Second discoidal cell

Third discoidal cell

First brachial cell

Second brachial cell

Sub median cell

- 16 Discoidellan cell
- 17 Submediellan cell
- 18 Anellan cell
- 19 Postellan cell
- 20 Postellan cell
- ****

Figure : 6

MAP OF SANGLI DISTRICT SHOWING AREA OF COLLECTION