

sucker anterior up to level of oral sucker. Ovary rounded, just by side or slightly posterior to ventral sucker; uterus mainly in near post ovarian region, extending as ascending narrow tube anterior. Genital pore marginal, on left at level of oral sucker. Vitellaria extending extensively from level of oesophagus posterior up to just in front of testes. Eggs elliptical, operculate. The measurements of this form are given in Table III.

REMARKS

The whole mount preparation of one specimen collected from *Rana liebigii*, though apparently resembled *Opisthioparorchis* species, turned out to be different from the new species of the genus described above. In its general morphology (elongated body, oral sucker larger than the ventral sucker- almost double the size, vitellaria limited to only pretesticular zone and long club-shaped cirrus sac), the present specimens stands close to *O. yunnanse* Li, 1996, which was originally described from *Rana spinosa* from Yunnan Province, China. However, the only conspicuous deviation it shows from this species is the length of the oesophagus; in *O. yunnanse* the oesophagus is quite long, though short in the present form. However, considering that just one character i.e. length of the oesophagus, is not enough to erect a new species, the present form is considered representing *O. yunnanse*.

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ANT DIVERSITY IN SOME SELECTED LOCALITIES OF SATTUR TALUK, VIRUDHUNAGAR DISTRICT, TAMIL NADU

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Social insects in general, and ants in particular have achieved unprecedented ecological success and dominance in tropical ecosystem (Gadagkar *et al.*, 1993). Social way of life adapted by all ant species brings with it both benefits and cost (Brain, 1975). Being such dominant and successful component of ecosystems, it is likely that ants would turn out to be good indicators of the well being of the ecosystem (Daniels, 1991). However, a literature survey revealed that only limited studies are available on diversity of ants. This may be due to lack of appropriate methodologies of tropical insect communities, especially ants (Gadagkar *et al.*, 1990). The present study was carried out in an attempt to understand and measure the status of ant species diversity in some selected localities of Sattur taluk (9°10'N & 77°52'E; 61.19m), Virudhunagar district, Tamil Nadu, in riverine, cultivated and industrial areas.

The study was carried out for seven months from August 2001 to February 2002. The ants were collected from three selected localities: cultivated areas (paddy, cotton, brinjal, ladies finger, *Cassia fistula*, banana, coconut, guava, palm etc), riverine areas (vegetation found along the banks of Arjuna and Vaiparu rivers), and industrial areas (match factories, fire works and printing industries). The average rainfall during the period was 75.84mm in Sattur taluk. Maximum and minimum temperatures were 35°C and 26°C, respectively. All the collected specimens were preserved in 70% alcohol. Ants were separated and sent to the Center for Ecological Science at Indian Institute of Science, Bangalore for identification and confirmation of ant specimens, with the help of Dr. R. Gadagkar, Director, CES. Relative abundance of ant species were calculated using the following formula (Micheal, 1986).

$$\text{Relative abundance} = \frac{\text{Total number of individuals of the species}}{\text{Total number of individuals of all species}} \times 100$$

A total of 25 species of ants belonging to 14 genera distributed in six subfamilies were recorded (Table 1). The subfamilies included Formicinae (9 species) followed by Myrmicinae (8 species), Pseudomyrmicinae (4 species), Ponerinae (2 species), Dorylinae / Dolichoderinae (1 species). The study revealed that more number of ant species were recorded in the riverine (24 species) and cultivated areas (20 species).

In well vegetated areas, most plants are usually accompanied by a variety of sap feeders, including aphids, mealy bugs, tree hoppers and scale insects that may serve as a food resource for ant species and also the excretory honeydew produced by these insects is a major carbohydrate rich-food for ants (Robinson, 1996). Palanichamy *et al.* (1995) also reported that black ants (*Camponotus* spp.) play a major role in pollination of some flowering plants. Sunilkumar *et al.* (1997) reported that, ant species richness generally increased with increase in vegetation.

The present investigation revealed that more number of *Camponotus* species (7 spp.) were recorded in the riverine and cultivated areas (Table.1) and where trees are more abundant. Douglas & Sudd (1980) and Robinson (1996) reported that majority of carpenter ants (*Camponotus* spp.) normally feed on honeydew of aphids. The same observation was reported in North America in which *Camponotus herculeranus* and *C. ferrugineus* were considered as serious pests of tree species. *Camponotus* species is one of the largest and most heterogenous ant genera in tropical and neotropical regions (Robinson, 1996). *Oecophylla smaragdina* species was rich in the coconut field in cultivated areas. The same observation was reported by Kumaresan (1998), *O. smaragdina* is considered as a major pest of coconut, date palm, citrus sp. and mango.

Lower diversity of ants was recorded in the industrial areas (12 species). This may be due to the pollutants like industrial effluents, chemical waste materials and release of smoke was severely reducing the diversity of ant population. Odum (1997) reported that the species diversity was greatly reduced when ant communities were subjected to periodic perturbation by man in nature. The same observation was made by Dash (1996), where industrial waste and sewage almost reduced the diversity of natural systems into which they are discharged. Relative abundance of predatory ants of subfamilies including Formicinae (36.00%) and Myrmicinae (32.00%) were found to be dominant in Sattur taluk.

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Table 1. Ant fauna of Sattur taluk, Virudhunagar district

Ant species	RA	CA	IA
Subfamily: Ponerinae			
1 <i>Leptogenys chinensis</i> (Jerdon)	+	+	+
2 <i>Pachycondyla</i> sp.	+	+	-
Subfamily: Pseudomyrmicinae			
3 <i>Tetraponera allaborans</i> (Walker)	+	+	-
4 <i>Tetraponera alkenii</i> (Forel)	-	+	-
5 <i>Tetraponera rufonigra</i> (Jerdon)	+	+	+
6 <i>Tetraponera nigra</i> (Jerdon)	+	+	+
Subfamily: Myrmicinae			
7 <i>Creumatogaster clara</i> (Mayr)	+	+	+
8 <i>Creumatogaster</i> sp.	+	+	+
9 <i>Solenopsis geminata</i> (Fabricius)	+	+	+
10 <i>Solenopsis invicta</i> (Buren)	+	+	+
11 <i>Cataulacus</i> sp.	+	-	-
12 <i>Monomorium pharaonis</i> (Linn.)	+	+	-
13 <i>Tetramorium caespitum</i> (Linn)	+	+	+
14 <i>Vollenhovia</i> sp.	+	-	-
Subfamily: Formicinae			
15 <i>Camponotus compressus</i> (Fabricius)	+	+	+
16 <i>Camponotus sericeus</i> (Fabricius)	+	+	+
17 <i>Camponotus floridanus</i> (Buckley)	+	+	+
18 <i>Camponotus ferruginae</i> (Fabricius)	+	+	-
19 <i>Camponotus tortuganus</i> (Emery)	+	-	-
20 <i>Camponotus</i> sp. 1	+	-	-
21 <i>Camponotus</i> sp. 2	+	+	-
22 <i>Oecophylla smaragdina</i> (Fabricius)	+	+	+
23 <i>Anoplolepis longipes</i> (Jerdon)	+	+	-
Subfamily: Dorylinae			
24 <i>Dorylus labiatus</i> (Fabricius)	+	-	-
Subfamily: Dolichoderinae			
25 <i>Tapinoma melanocephalum</i> (Fabricius)	+	+	-
	24	20	12

+ - Present; - - Absent; CA - Cultivated area; IA - Industrial area; RA - Riverine area

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