



## STUDY OF SOME SPIDERS FROM FAMILY ARANEIDAE IN AND AROUND DARYAPUR TEHSIL, DISTRICT AMRAVATI.

### Entomology

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### ABSTRACT

Study of some spider species from family Araneidae were conducted in and around Daryapur tehsil. Total 5 species were described from genus Cyclosa, Eriovixia, and Neoscona from family Araneidae. The spider species were studied mainly in the fence around the farm and along the road leading to the farm. The spiders from genus Cyclosa and Neoscona found abundant and widely distributed in study area during August to the month of January (mid Monsoon to post Monsoon season) of the year. However, the recorded species have already been studied from other parts of the country.

### KEYWORDS

spider, Daryapur, Araneidae, species, country.

### INTRODUCTION:

Spiders are most common and unique invertebrate predator found on entire land of the world. Spiders have dominated all possible ecological niches on land (Turnbull 1973; Riechert 1984; Wise 1993). The spiders from family Araneidae are orb web weavers and construct a beautiful web with unique pattern in different habitat. The different spider species of family Araneidae shows their own pattern of web designing. Despite of ecological importance in many ecosystems, high diversity and documented threats to some of the species, spiders have received little attention by the scientific community. This is due to the scarcity of proper acquaintance towards the biology of spiders. Spiders are important components of agricultural systems because of negative pressure exert on insect populations (Nyffeler and Benz 1987; Young and Edwards 1990). Major contributions to the Indian spider study were made by Tikader (1980-1987), he has high lightened spider studies to the notice of another researcher.

Spiders can be easily distinguished from insects, since insects have six legs. However, spiders are adapted with appendages for feeding purpose, defence, and sensory function. The first pair of the chelicerae used for feeding purpose and help in defence mechanism. The next pair of appendages, the pedipalp, used for locomotion, feeding and in reproduction. The underside and head of a female spiders, unlike insects, have only two main body parts (tagmata) instead of three: a fused head and thorax are called as cephalothorax or prosoma and an abdomen (also called an opisthosoma). The abdomen and cephalothorax both are connected by a thin structure called pedicel. Tikader (1987) provided the pioneering list of Indian spiders. As the common name implies these spiders occur in the veil among grasses and bushes, (Hippargi, *et al.*, 2011 and Keswani *et al* 2012).

### MATERIAL AND METHODS:

The present study is based on material collected from September 2017 to October 2018 in and around Daryapur taluka, district-Amravati in Vidarbha region of Maharashtra, India. The few important collecting techniques used to capture spiders at selected locations were visual search, hand collection, sweep netting, and vegetation beating. All specimens were preserved in 70% ethyl alcohol. The female genitalia were dissected and epigyne was then cleared in 10% KOH aqueous solution. The specimens were identified by using a Carl-Zeiss Stemi 2000-c Stereo-Zoom microscope mounted with Axio Cam ERc5s camera (Germany). Daryapur tahsil is located in Amravati district in Maharashtra, India. It is situated 52 km away from district headquarter Amravati.

### OBSERVATIONS AND RESULTS:

#### *Cyclosa hexatuberculata* (Tikader 1982) female:

Cephalothorax longer than wider, yellowish brown in colour, longer than wide, slightly narrow anteriorly and broader posteriorly, thoracic region is slightly higher than cephalic region, Chelicerae is stronger, yellowish brown in colour with presence of few and dense scapulae in the inner surface, fangs a stronger yellowish brown in colour, pointed at the tip and thick at base, Sternum heart shaped, yellowish brown colour, broader anteriorly and pointed at posteriorly, concave anteriorly, clothed with hairs. Endites thick larger, lightly yellow brown with paler toward labium. Female palp with all segments

slender, blackish in color, presence of hairs over all segments.

leg formula: 4123, with short spines over all over the segments of legs, clothed with straight black hairs, coxa, trochanter, femur, brown colored, Trichobothria present on patella, tibia, tarsus and metatarsus, femora I with two protrolateral spine, patella with one retrolateral spine, patella II with one retroterminal spine, III with on dorsal terminal spine, tibia I with two prolateral spine one ventral terminal spine, metatarsus and tarsus provided with numerous spines.

#### *Eriovixia excelsa* (Simon, 1889) female:

Carapace dark brown in coloration with setae on cephalic region, head is lighter, cephalic higher than thoracic, anterior thorax depressed immediately behind cephalic part, anterior narrow, posterior broad, cephalic region narrowed anteriorly, 8 Eyes are arranged in two rows, anterior eye row recurved, posterior eye row straight. Clypeus lower than eye region, presence of few curved setae, no distinct chillum, Chelicerae strong, yellowish brown with setae at outside and curved dense scapulae inner surface; fangs yellowish brown, pointed at the tip, thick at base, strongly curved serrated margins, thick at base, pointed at tip, pro margin with four teeth, among which first and third are large and strong as compared with other two teeth; retro margin with three teeth in which first and second are strong teeth surrounded by fine scapulae. Labium dark brown, slightly wider crescent shaped presence of few setae over it and presence of dense scapulae at its anterior tip and inner margin. Female palp with all segment is slender, longer tarsus and metatarsus, presence of numerous setae over all segments except trochanter and femur. Leg formula- 1243.

Abdomen globular, black in color with white patches, dorsal two pairs of sigilla present, few large straight setae present at distal tip of abdomen near to pedicel, rest of the abdomen in the form of folding muscles with hairs, at posterior end bears a small tubercle. Venter side blackish brown with a pair of chalk-coloured white spots. Spinnerets small, aggregated together ventrally, surrounded by rounded fold, clothed with hair, segmented brown colored.

#### *Neoscona nautica* (Koch, 1875) female:

Cephalic region higher than thoracic, longer than wide, narrow anteriorly, depression between cephalic and thoracic, provided with longitudinal light band, covered with hairs and grey pubescence, eyes arranged in two row, anterior medians slightly larger than posterior medians, median eyes away from laterals, recurved eyes, MOQ slightly wider anteriorly, than posteriorly, each eye black bordered, presence of few curved setae. Sternum heart shaped, broader anteriorly, pointed at posteriorly, clothed with pubescence and hairs, dark brown, labium wider than long, dark brown in colour with pale margin at distal end, female palp with all segments slender and presence of hairs over it, yellowish brown. Leg formula: 1423, with short spines over segments of legs, legs strong with pale transverse band.

**Abdomen:** Triangular wider anteriorly and narrow posteriorly, covered with pubescence. Dorsum of abdomen with mid-longitudinal chalk white bar having 4 projections, presence of the greenish brown patches, 6 pairs of sigilla present, ventral side green brownish patches.

Epigyne is short and broad triangular scape, presence of lateral lobe without any constriction.

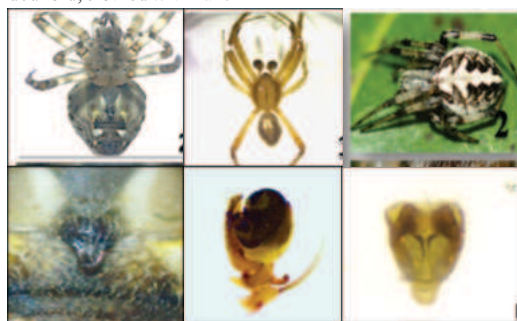
#### ***Neoscona theisi* (Walckenaer, 1841) female:**

Cephalic region higher than thoracic, depression between cephalic and thoracic, longer than wide, narrow anteriorly and broader posteriorly, provided with longitudinal groove, covered with hairs. Eyes arranged in two row, anterior medians slightly larger than posterior medians, median eyes away from laterals, recurved eyes, MOQ slightly wider anteriorly, than posteriorly, each eye black bordered, presence of few curved setae, no distinct chillum. Endites thick larger, yellowish with presence of setae, broader anteriorly than posteriorly. Sternum heart shaped, broader anteriorly, pointed at posteriorly, clothed with pubescence and hairs, dark brown. Labium is wider than longer, dark brown in color, presence of setae. Female palp with all segments slender, presence of hairs over all segments, yellowish brown, 1 tarsal claw is present. Leg formula: 1423.

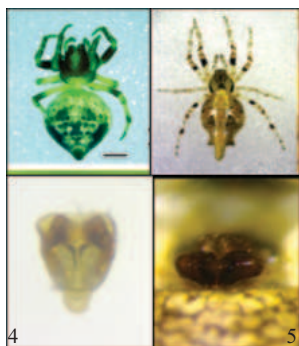
**Abdomen:** Sub oval wider anteriorly than posteriorly covered with pubescence. Dorsum of abdomen with mid-longitudinal chalk white bar having 4 projections, presence of dark brown patches, 4 pairs of Sigilla present, ventral side light brownish, broad brown patch present, Epigyne with constriction in the middle, a pair of lateral lobes with circular opening at its side. Spinnerets at the top of abdomen toward ventral side, aggregated together, clothed with hairs.

#### ***Neoscona theisi* (Walckenaer, 1841) male:**

Cephalothorax yellow brown color, longer than wide, narrow anteriorly, broader posteriorly, thoracic region with longitudinal depression, clothed with the hairs. 8 eyes in two rows (4:4) AE rows more recurved than PE, lateral eye group is widely separated from median eye, MOQ is slightly wider anteriorly than posteriorly, presence of few curved setae, clypeus is small and very closer to eye region. Chelicerae small, yellowish brown with presence of hairs, fang swollen just posterior to middle, well developed tooth like projection is present, 4 promarginal teeth present in which 3 and 4 is larger, 4 retro marginal teeth present, Labium yellowish brown, wide, presence of few setae over Male palp with large curved paracymbium, medium hypophysis large with wide base, cymbium brownish reddish color and surface clothed with hairs. Sternum triangular, concave anteriorly, pointed posteriorly, dark brown in color, bathed with hairs and pubescence. Leg formula: 1423. Abdomen: elongate, covered with setae, broad at anterior end, and narrow at posterior end, brown with chalk colour white spot at anterior end, 2 pairs of sigilla present. Spinnerets: simple with aggregate silk gland spigots, surrounded by rounded fold, clothed with hair.



*Neoscona nautica* (Koch, 1875) Female    *Neoscona theisi* (Walckenaer, Male)    *Neoscona theisi* (Walckenaer, 1841) female



*Eriovixia excelsa* (Simon, 1889) Female    *Cyclosa hexatuberculata* (Tikader, 1980) female

#### **DISCUSSION:**

In this study 5 species of spiders belonging to the 3 genera from family Araneidae were studied. It mainly studied spiders in fences around farms as well as roadside of agroecosystem. Elsewhere these spider species have been studied before. While conducting this study, it was found that the diversity of spiders was good. But in some places, it is declined. The reason for this was found to be deforestation as well as excessive use of pesticides in the agricultural field. Deforestation has to be stopped to increase spider population and farmers have to be made aware of it. The spider has a long way to maintain and balance the ecosystem.

#### **CONCLUSION:**

The present attempt was to study spiders from genus Cyclosa, Eriovixia, and Neoscona in and around Daryapur. This research provided the basic information on some spider in the study region. Rich diversity of Araneidae indicated that the environmental conditions, food sources and seasonal variations are suitable to them. Spiders are very sensitive to changes in the habitat arrangements and also have largely been ignored by the conservationists. Therefore, it is very essential to protect and conserve this ecosystem.

#### **REFERENCES:**

1. Turnbull, A. L. (1973) Ecology of the true spiders (Araneomorphae). *A. Rev. Ent.* 18, 305-348.
2. Reichert, S.E., and Lockley, T. (1984). Spiders as biological control agents. *Ann. Rev. Entomol.* 29, 299-320.
3. Wise, D. H. (1993). Spiders in ecological webs. *Cambridge university press*, 0-521-32
4. Nyffeler, M., and Benz, G. (1987). Spiders in natural pest control: a review. *A journal of applied Entomology*, 103, 321-339.
5. Young, O. P., and Edward, G. B. (1990). Spiders in United States field crops and their potential effect on crop pests. *J. Arachnol.* 18, 1-27.
6. Tikader BK (1987). Handbook of Indian Spiders, Zoological Survey of India, Calcutta, India.
7. Keswani S, Hadole P & Rajoria A (2012): Checklist of spiders (Arachnida: Araneae) From India 2012. *Ind. J. Arachnol. Voil*, 1, 129.