



EXPLORING SPIDER FAUNA (ARANEAE) FROM SAYAGATA JUNGLE AND PANDIT DINDAYAL UPADHYAY ECOPARK, BRAMHAPURI, DIST-CHANDRAPUR (M.S.) INDIA

R. N. Chavhan

Department of Zoology, Rashtrapita Mahatma Gandhi Arts & Science College Nagbhid, District Chandrapur (MS) India

Corresponding Email: rajendrac99@gmail.com

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ABSTRACT:

Spiders are nature pest control. Survey on spiders' diversity conducted at Sayagata Jungle and Pandit Dindayal Upadhyay Eco Park of Bramhapuri, (MS) India, during winter season (Oct-2021 to Jan-2022) by using methods like point observation and random sampling using trails. During study total 08 species belonging to order Araneae in the class Arachnida, and 05 families, viz., Pholcidae, Hersiliidae, Araneidae, Lycosidae, and Sparassidae were recorded. These types of surveys are important for the study of the prevalence of the spider population in given habitats and to create a biodiversity database of spider fauna at the respective study site. The recorded species include both hunting spiders and orb-web weavers. This helps in showing that they are both good predators and preys. There is a need to study the seasonal variation of the spider fauna in these regions and the conservation of this ecosystem which has been a habitat for multiply species of spider fauna.

Keywords:- Diversity, Pandit Dindayal Upadhyay Eco Park, Spider species, Sayagata jungle.

INTRODUCTION :

Spiders are considered as biological control agents as they help in maintaining the ecological balance in the nature by feeding on the small insects and in return these spiders are being eaten by birds and other bigger insects (Palem *et al.*, 2016; Bhattacharya *et al.*, 2017). Spiders are most diverse organism and India is known to be a mega diverse country for its high diversity of flora and fauna and contributing to this biodiversity is the Order Araneae which comprises of Spider. Now a day it is necessary to study its diversity due to loss in the natural habitat mostly by deforestation (Khan *et al.*, 2019). Natural habitat of spiders where the web-building and free-living spiders are easily spotted on the foliage and stems of living or dead shrubs, high herbs, tree trunks etc observed. Spiders can't eat solid food, so they have to liquefy the food by using digestive juices and

then consume this liquid food (Dharmaraj *et al.*, 2017).

STUDY AREA :

The study area is located at the latitude of Bramhapuri, Maharashtra, India is **20.608042**, and the longitude is **79.861336**. **Bramhapuri, (MS), India** is located at *India* country in the *Towns* place category with the GPS coordinates of 20° 36' 28.9512" N and 79° 51' 40.8096" E. Sayagata Jungle (forest) and Pandit Dindayal Upadhyay Eco Park are located on the Bramhapuri to Nagbhid state highway. The sites are located in the urban area with a good number of vegetation. Study sites are surrounded by human dwellings; and has well maintained garden and open field. The flora found at the study location was in wide range.

MATERIALS AND METHODS :

The study was carried out from Oct-2021 to Jan-2022. Survey was done three or four times a week in the evening hours. Random sampling

using trails and point observation method (Vinod Kumari et al., 2017) carried out during study. Collections were done by hand picking, gentle beating on surroundings so as to make the individual pass into the cleared area for better viewing. The collected spiders were photographed using a digital camera (Nikon camera) in live condition identified and then released to their natural habitat (Kumari & Shet, 2019). The book “Spiders of India” by PA Sebastian and KV Peter was referred for the identification of the recorded spiders.

RESULT AND DISCUSSION :

Total 08 species encountered during study Viz. *Artema atlanta* Walckenaer, 1837, *Rabidosa rabida* Walckenaer, 1837, *Hersilia savignyi* Lucas, 1836, *Cyrtophora cicatrosa* Stoliczka 1869, *Nephila pilipes* Fabricius, 1793, *Heteropoda venatoria* Linnaeus, 1767, *Argiopeaemula* Walckenaer, 1841 and *Leucauge decorata* Blackwall, 1864 which belonged to 05 families of Order Araneae (Table1). The highest species diversity was observed at Pandit Dindayal Upadhyay Eco Park with a total number of 06 species and at Sayagata Jungle, only 02 species observed (Fig 1).

In Gibbon Wildlife Sanctuary, 95 species of spiders belonging to 56 genera and 18 families were recorded by (Chetia & Kalita, 2012). 81 species of spiders under 51genera from 19 families were documented in Sacred grooves of Odisha by (De & Palita, 2018). 10 families of spiders were recorded in Gulbarga in 2012 by (Deshpande & Paul, 2016). Halarnkar & Pai, (2018), revealed the presence of 29 species in one location and 30 species of spiders in other location, 51 species were documented at Malavagoppa Village in Shimoga district by (Kumari & Shet, 2019). 98 individuals of 11 different species were observed and studied from 10 localities in the Satpuda Mountain by

(Magare, 2017). 74 species of spiders belonging to 17 families were recorded by (Pandit & Pai, 2017). 11 genus and 26 species of family Araenidae were spotted in Akola by (Shirbhate & Shirbhate, 2017). 26 species of spiders belonging to 10 families were observed near the River Narmada by (Shukla et al., 2015). 32species of spiders belonging to 7 families were observed in different habitats of the University of Pune by (Wankhade et al., 2012).

The genera *Artema* and *Heteropoda* are found in buildings, whereas, the other species are found over vegetation. Spiders of the genera *Leucauge*, *Nephila*, *Argiope*, *Cyrtophora* and *Artema* make webs for catching insects, while other genera like *Heteropoda* hunt the prey. *Heteropoda* hunting spiders have better vision for catching prey as compared to orb-web spiders, which use webs for trapping flying insects. *Nephila* and *Leucauge* spiders like to make their webs near water. *Nephila pilipes* makes the largest orb-webs between adjacent trees.

***Artema atlanta* Walckenaer, 1837** (fig.1, pic. 1): Commonly known as oval daddy-long leg spider. This spider has greyish white cephalothorax with a mid-longitudinal dark band. Eyes six in number, present at the tipoff cephalothorax. Legs very long, covered with black spots and small hairs and with black coloured joints. Size of Female spider is 5-7 mm and male 3-5 mm in length.

***Rabidosa rabida* Walckenaer, 1837** (fig.1, pic. 2): Rabid wolf spiders received their name from how they move erratically and fast. They don't stay in one place for too long and like to wander; hence the name 'wandering spider'. Unlike other spiders, rapid wolf spiders don't spin web. Male tend to be smaller (0.43 inches) than females (0.47 inches) long and they are harder to catch. Spiders are a common nuisance found worldwide that favours woodland area, cotton field and buildings.

***Hersilia savignyi* Lucas, 1836** (fig.1, pic. 3): Two-tailed spiders are easily identified with the presence of long posterior spinnerets elongated like a needle. Body is dull coloured, camouflaged with the environment. Construct web in the tree barks. It is found attached in dry tree trunks. The spider is a very fast runner. Male spiders are smaller (5-8 mm) than female (8-10 mm).

***Cyrtophora cicatrosa* Stoliczka 1869** (fig.1, pic. 4): Garden tent-web spider cephalothorax and legs yellowish with black markings; abdomen greyish with black spots and a patch distally. The spider constructs tent web, about a meter high from the ground. Builds web in open environment prefers moist and thick surrounding.

***Nephila pilipes* Fabricius, 1793** (fig.1, pic. 5): A common giant wood spider found commonly in secondary forests and garden with woody vegetation; males are exceptionally smaller than females found in the vicinity of female web. It has long legs with spines, the third pair of legs is shorter than the other three pairs. The third pair of legs helps in spinning webs. Male spiders are smaller (7-10 mm) than female 31-49 mm in length.

***Heteropoda venatoria* Linnaeus, 1767** (fig.1, pic. 6): The giant huntsman spiders are large, long-legged spiders measuring up to 15 centimeters across the legs. Huntsman spiders are mostly grey to brown, sometimes with banded legs. Huntsman spiders have eight eyes. Spiders are lives in narrow spaces under loose bark or rock crevices.

***Argio peaemula* Walckenaer, 1841** (fig.1, pic. 7): Also commonly called as Black and yellow garden spider or oval St Andrews cross spider found near human settlements and the

spider has eight legs that are doubled up and spread like an 'X' in the Web. The legs are long with claw like structures at the end, they are easily identified thanks to their subimentum in their web.

***Leucauge decorata* Blackwall, 1864** (fig.1, pic. 8): Decorative silver orb spider is one of the long jawed orb weaver spiders. Spiders are found in moist environments, grasses and low shrubs. A tetragnathid spider with decorative pattern of three longitudinal lines on abdomen with silverfish patches found in grassy patches.

CONCLUSION :

Spiders help in maintaining the ecological balance of nature as they feed on large population of insect preys. It was seen that Pandit Dindayal Upadhyaya Eco Park showed good species diversity and richness as compared to Sayagata Jungle. It is necessary to conserved this ecosystem are for both good predators and preys.

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Table no.1) Observation of spider species at Pandit Dindayal Upadhyay Eco park and Sayagata Jungle, Bramhapuri, dist-Chandrapur (M.S.) India

SN	Family	Common name	Scientific name
1	Araneidae	Decorative silver orb spider	<i>Leucauge decorata</i> Blackwall, 1864
2	Araneidae	Black and yellow garden spider or oval St Andrews cross spider	<i>Argiopeaemula</i> Walckenaer,1841
3	Araneidae	Common giant wood spider	<i>Nephila pilipes</i> Fabricius, 1793
4	Araneidae	Garden tent-web spider	<i>Cyrtophora cicatrosa</i> Stoliczka 1869
5	Pholcidae	Oval daddy-long leg spider	<i>Artema atlanta</i> Walckenaer, 1837
6	Hersillidae	Two-tailed spider	<i>Hersilia savignyi</i> Lucas, 1836
7	Lycosidae	Rabid wolf spider	<i>Rabidosa rabida</i> Walckenaer, 1837
8	Sparassidae	Giant huntsman spider	<i>Heteropoda venatoria</i> Linnaeus, 1767

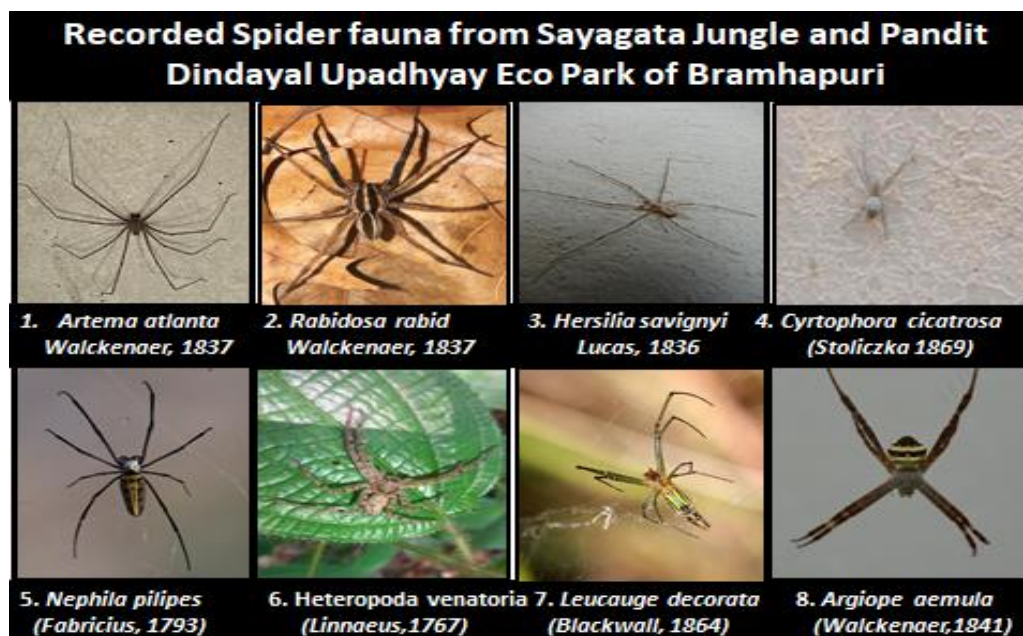


Fig. 1