Diversity of Spiders (Family: Salticidae) from Sangola Region of Solapur District (M.S.) India

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Abstract

The Salticidae are largest family of spiders in the order Araneae of class Arachnida. The present study was conducted during the year 2022-23 at drought prone region of Sangola in Solapur district (M.S.) India. In present study from Salticidae family 15 species were recorded belongs to 14 genera. Members of family Salticidae includes jumping spiders are voraging and hunting in behaviours. Most of Salticidae spiders either carnivorous (insect feeders) or herbivorous (nector feeders) and plays important ecological role in the ecosystem.

Key words : Araneae, Salticidae, Spider diversity, Hunting spiders.

Spiders play an important role in the diverse ecosystem. This study aims to study diversity of spider. Spiders are an integral part of global biodiversity as an important indicator in biodiversity assessment studies. Spiders are obligate carnivores and hold the unique position of being the only large class of arthropods which are entirely predatory in nature. Predation significantly contributes towards preventing the excessive increase of insect populations. Under normal field conditions, if one predator species is absent, another one may take its place. Spiders generally have humidity and temperature preferences that limit them to areas within the range of their

physiological tolerances, which in turn makes them ideal candidates for land conservation studies (Noss,1990). Therefore, documenting spider diversity patterns can provide important information on the biodiversity of this tropical agro and forest ecosystem.

Family Salticidae is most species rich group of order Araneae. Salticidae is the largest spider family in the world grouping 671 genera and 6,495 species¹⁷ and they are commonly called jumping spiders because most of the species are very active in warm weather, leaping from leaves, bark, twigs in the search of prey or to escape from potential predators.

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They are very small to medium-sized, active, hunting spiders capable of jumping or leaping to a distance. The most characteristic feature is the ocular clad on the cephalothorax delimited by eight eyes arranged in three or four rows. Front row formed of forwardly directed four eyes among which the anterior median eyes are very large and easily noticeable. They move by walking, running, jumping or leaping and use all these movements for prey capture. They hunt the prey by stalking, chasing and leaping over it. Prey mainly includes insects; some also prefer other spiders or ants. They are characterized by an acute visual system and being capable of very agile jumps. Generally, they are day hunters that actively seek their prey. Jumping spiders are strongly influenced by habitat type. Their abundance and species composition are affected by the structural complexity of vegetation, giving their site preferences for stalking and hunting prev. The combination of narrow spatial niches occupied by most species and diverse microhabitats within a site would explain the high diversity of jumping spiders. Despite this long history of research and their ecological importance, considerable gaps remain in our understanding of spider fauna in Solapur district.

Jumping spiders are taxonomically diverse, present everywhere in huge abundance and diurnal. As their names simply, jumping spiders are also quick and agile jumpers, and will do so both to escape potential predators and to capture small prey and regulating arthropod population. Spiders have important role in ecosystems but they have been largely ignored in conservational studies. This might be one of the reasons of poor knowledge on jumping spider of this area.

Study area : Present study region comes under drought prone region of Solapur District of Maharashtra. Stretch between 17°5' North to 17°42' North and Longitudinal extension takes place between 74°80'east to 75°16' east⁶. Southern part of Sangola tahsil is hilly, areas having various heights are 450 m to 750 m above mean sea level. The daytime temperature is going to reach 30°C and the temperature is going to dip to 16°C at night. Man, Belwan, Korada Rivers and its their tributaries flows in Sangola tahsil. The weather condition of the Sangola are scanty and ill distributed rainfall and experiences a prolonged dry season which experiences a high variation in temperature. Annual average rainfall is about 550 mm to 600 mm approximately. According to climatic conditions variations in agriculture practices in different sites of drought prone region Sangola tahsil is occurs.

Methodology : The survey method was conducted into the specified regions namely Sangola, Mahud region, Javala region and Kola region from Sangola tahsil during January 2022 to December 2023. The collected species are identified by using standard method prescribed by Tikadar¹², Gajbe and Platnick (1994). For the identification spiders are collected, photographed and released in their natural habitat by direct visual search, litter sampling, sweep netting and hand picking methods from all the sites. Identification was carried out on the basis of morphological characters from keys and catalogues provided by Tikader¹³, Platnick⁸, and other relevant

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Map of Sangola Tahsil showing four study sites

literature. The scientific names of jumping spiders are based on the World Spider Catalog¹⁷.

The present study was conducted from drought prone region Sangola in Solapur district (M.S.) India. In present study from Family-Salticidae by 15 species belong to 14 genera (Table-1 & Fig. 1) were recorded. The Species such as *Hasarius adansoni*, *Plexippus paykulli*, and *Plexippus petersi* were commonly observed in human dwellings actively, searching for prey on the walls of buildings. Other species such as *Chrysilla volupe*, *Telamonia dimidiate*, *Menemerus bivittatus*, *Thyene imperialis*, *Pintella vittata*, *Stenaelurillus vyaghri*, *Hyllus semicupreus*, *Epocilla* sp., *Rhene flavicomans*, *Epeus indicus*, *Harmochirus brachiatus and Myrmarachne sp*. are generally seen among foliage, where they can hide and stalk insect prey and also build silken retreats. *Menemerus bivittatus* is a pantropical species that is often seen on the bark of trees or on the walls of buildings⁴.

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Order	Family	Species Name	Common name
		1. Chrysilla volupe (Karsch, 1879)	Jumping spider
Araneae	Salticidae	2. Telamonia dimidiata (Simon, 1899)	Two striped jumping spider
	(Blackwall,	3. Plexippus paykulli (Audouin, 1826)	Pantropical jumping spider
	1841)	4. Menemerus bivittatus (Dufour, 1831)	Grey wall jumper spider
		5. Thyene imperialis (Rossi, 1846)	Jumping spider
		6. Phintella vittata (C.L. Koch, 1846)	Banded Phintella
		7. Stenaelurillus vyaghri (Sanap,	Jumping spider
		Joglekar & Caleb, 2022)	
		8. Plexippus petersi (Karsch, 1878)	Common housefly Catcher
		9. Hasarius adansoni (Audouin, 1826)	Adanson's house jumper
		10. Hyllus semicupreus (Simon, 1885)	Jumping spider
		11. Epocilla sp. (Thorell, 1887)	Orange jumping spider
		12. Rhene flavicomans (Simon, 1902)	Wasp mimic jumping spider
		13. Epeus indicus (Prószyn' ski 1992)	White Spotted Green spider
		14. Harmochirus brachiatus	Jumping spider
		(Thorell, 1877).	
		15. Myrmarachne sp. (MacLeay, 1839)	Ant mimicking jumping
			spider

Table-1. Jumping Spiders (Family-Salticidae) from drought prone region Sangola of Solapur district

The present study region comes under drought prone region of Solapur district (M.S.) India⁶ having rich diversity of spiders belong to Family-salticidae (Jumping spiders), Salticidae spiders are predators as well as preys will helpful in controlling insect crop pest especially, pomegranate fruit crop. So, there is an urgent 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 in maintaining ecological balance. They are the controller agent of the biodiversity and therefore they should be preserved.

Fig. 1. Showing photographs of Jumping Spiders (Salticidae) from drought prone region Sangola in Solapur district



1a. *Chrysilla volupe* (male)



1b. *Chrysilla volupe* (female)



2a. *Telamonia dimidiata* (female)



2b. *Telamonia dimidiata* (male)

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3a. Plexippus paykulli 3b. Plexippus paykulli 4. Menemerus bivittatus (male)



(female)





- (female)
 - 5. Thyene imperialis



6. Pintella vittata (female)



7. Stenaelurillus vyaghri (male)



8. Plexippus petersi



9. Hasarius adansoni



10. Hyllus semicupreus (female)



11. Epocilla sp.



12. Rhene flavicomans



13. Epeus indicus



14. Harmochirus brachiatus



15. Myrmarachne sp

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