SPIDER FAUNA IN THE HORTICULTURAL CROPS OF YERCAUD HILLS

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The checklist of Indian spiders by Siliwal & Molur (2007) indicated 1462 taxa (1447 species & 15 subspecies). Sugumaran *et al.* (2001) noted 56 different species of spiders under 18 families recorded in the Western Ghats of Tamil Nadu. A study was undertaken on the spider diversity of Yercaud hills to complement very little work on this group from the area..

Study Area and Methodology: Survey for collection and population assessment of spiders was carried out in three areas in Yercaud hills, *viz.*, Horticultural Research Station campus located at Ondikadai, Muluvi coffee estates and Kotachedu coffee estates from an area of 100m^2 to 500m^2 in each place. Spiders were collected by adopting standard sampling procedures as describe below.

a) Hand picking: Whenever spiders were encountered, they were carefully picked without injuring them and transferred to polythene bags. Very small spiders were picked up using a brush dipped in alcohol and were transferred into glass vials containing Oudemann's fluid.

b) Net sweeping: Spiders were collected by sweeping the net to and fro randomly on the vegetation. During sweeping, the net was examined at regular intervals for any trapped spiders, which were immediately transferred to polythene bags.

Collected spiders were preserved in Oudemann's fluid (85 parts 70% ethyl alcohol, 5 parts glacial acetic acid & 5 parts Glycerine) and stored in the Regional Laboratory, Horticultural Research Station, Yercaud. Spider specimens were identified using the taxonomic keys given by Tikader (1987), by Barrion and Litsinger (1984, 1995) and other literatures collected from the web.

Results: A total of 265 spider individuals were collected in horticultural crops of Yercaud hills represented by 38 species belonging to 13 families (Tables 1 & 2). In a similar study, Rajeswaran *et al.* (2005) recorded spiders of 13 species belonging to eight families in vegetable crops belonging to the families of Solanaceae, Cucurbitaceae, Brassicaceae and Liliaceae; 27 species belonging to 14 families in grapevines; and 26 species belonging to six families in coconut. From the observations recorded in Yercaud hills, the coffee plantations supported 28 species from 12 families, fruit trees supported 13 species in seven families, other trees (like shade trees) supported 12 species, flowering crops nine species in five families, pepper 10 species in seven families and grasses and shrubs recorded 12 species in seven families. Among the various crops and locations surveyed families Salticidae, Araneidae, Theridiidae and Tetragnathidae were common to all. Six species were recorded from the family Tetragnathidae, five from Salticidae and ten from Araneidae. Three species were recorded from Oxyopidae, and two species each from Theridiidae, Thomisidae, Clubionidae, Hersilidae, Sparassidae, and one species each from Agelenidae, Lycosidae, Linyphidae and Uloboridae. Among the crops, coffee plantations had maximum spider diversity (1.248) followed by fruit trees (1.170) and flowering crops had minimum spider diversity (0.874) (Table 3).

From the study by Rajeswaran *et al.* (2005) spiders belonging to the families of Theridiidae, Anyphenemidae and Dictynidae constituted 72-92% among the 68 species recorded in apple. In this study in fruit crops in Yercaud hills, the spiders belonging to the families Salticidae, Linyphidae and Theridiidae were predominant. Amongst them, *Linyphia urbasae*, *Achaearanea mundulum*, *Clubionia* sp. and spiders in the family Salticidae were dominant as observed in coffee plantations. The common spider species that were collected in flowering crops in Yercaud were *Paradosa pseudoannulata*, *Achaeranea mundulum*, *Leucauge decorata*, *Cyclosa* sp., *Cheracathium hugiscium* and in a similar study in flowering crops the important predatory spiders found in Jasmine ecosystem were *Phidippus punjabensis*, *Salticus* sp., *Cheiracanthium* sp., *Pardosa* sp. and *Theridion* sp. and they were effective against larvae of *Nausinoe geometralis* (Rajeswaran *et al.*, 2005).

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Table 1. Spider fauna of Yercaud hills

	Agelenidae C.L.Koch, 1837
1	*Agelena* sp.
	Araneidae Simon, 1895
2	*Arachnura* sp.
3	*Araneus* sp.
4	*Argiope aemula* (Walckenear 1842)
5	*Argiope pulchella* Thorell 1881
6	*Cryptophora* sp.
7	*Cyclosa* sp.
8	*Crytarachne* sp.
9	*Gasteragantha geminata* (Fabricius, 1798)
10	*Gasteragantha hasselti* C.L. Koch, 1837
11	*Neoscona* sp.
	Lycosidae Sundevall 1833
12	*Pardosa pseudoannulata* (Boesenberg and Strang, 1906)
	Oxyopidae Thore11,1870
13	*Oxyopes javanus* Thorell, 1887
14	*Oxyopes lineatipes* (Koch, 1847)
15	*Peucetia viridana* (Stolickza, 1869)
	Theridiidae Sundevall 1833
16	*Achaearanea mundula* (Koch, 1872)
17	Chrysso sp.
	Thomisidae Sundevall, 1833
18	*Thomisus beautifularis* Basu, 1965
19	*Thomisus* sp.
	Clubionidae Wagner, 1887
20	*Cheracanthium hugiscium* Barrion & Litsinger, 1985
21	*Clubiona* sp.
	Hersilidae Thore11,1870
22	*Hersilia savignyi* Lucas, 1836
23	*Hersilia* sp.
	Sparassidae Bertkav, 1872
24	*Heteropoda venatoria* (Linnaeus, 1767)
25	*Olios milleti* (Pocock, 1901)
	Salticidae Black wall, 1841
26	*Myrmarachne markaha* Barrion & Litsinger, 1985
27	*Plexippus* sp.
28	*Myrmarachne plataleoides* (Cambridge, 1869)
29	*Telamonia dimidiata* (Simon, 1899)
30	*Thiania bhamoensis* Thorell, 1887
	Tetragnathidae Menge, 1866
31	*Tetragnatha* sp.
32	*Herennia multipuncta* (Doleschall, 1859)
33	*Leucauge decorata* (Blackwall, 1864)
34	*Opadometa fastigata* (Simon, 1877)
35	*Nephila kuhlii* (Doleschall, 1859)
36	*Nephila pilipes* (Fabricius, 1793)
	Linyphiidae Black wall, 1859
37	*Linyphia urbasae* Tikader, 1970
	Uloboridae Thorell,1869
38	*Zosis geniculata* (Olivier, 1789)

Table 2. Total number of individuals of spiders collected from different vegetations in Yercaud

Spider Species	No. of individuals collected
Coffee Plantations	
Cheracanthium hugiscium	5
Clubionia sp.	4
Cyclosa sp.	13
Salticids	15
Plexippus sp.	2
Leucauge fastigata	26
Telamonia dimidiata	2
Achaeranea mundulum	7
Zosis geniculata	1
Gasteragantha geminata	5
Olios milleti	5
Thomisus beautifularis	1
Tetragnatha sp.	5
Linyphia urbasae	10
Argiope pulchella	3
Myrmarachne plataleoides	4
Myrmarachne markaha	4
Leucauge decorata	2
Pardosa pseudoannulata	3
Oxyopes javanus	1
Nephila pilipes	2
Chrysso sp.	1
Agelena sp.	3
Arachnura sp.	1
Gasteracantha hasselti	2
Cryptophora sp.	2
Crytarachne sp.	1
Heteropoda venatoria	1
Other trees:	
Aracaria sp.	
Neoscona sp.	2
Erythrina	
Thomisus sp.	1
Agave	
Orgiope aemula	2
Silver Oak	
Achaeranea mundulum	1
Nephila kuhlii	1
Leucauge decorata	1
Salticids	3
Cyclosa sp.	1
Leucauge fastigata	1
Tetragnatha sp.	1
Spathodea companulatum	
Myrmarachne markaha	1
Calotrophis	
Araneus sp.	2
Glyricidia	
Araneus sp.	1
Achaeranea mundulum	1
Clubionia sp.	1
Flowering Crops	
Gerbera, Anthurium, Gladiolus	
Argiope pulchella	1
Araneus sp.	7
Leucauge decorata	6
Agelena sp.	2
Cyclosa sp.	4
Cheracathium hugiscium	3
Salticid	1
Achaeranea mundulum	2
Paradosa pseudoannulata	3
Fruit Trees - Banana	
Myrmarachne plataleoides	1
Hersilia sp.	5
Salticids	3
Olios milleti	1
Hersilia savignyi	3
Jack	
Leucauge fastigata	2
Cyclosa sp.	1
Fig	
Salticid	1
Achaeranea mundulum	1
Orange	
Linyphia urbasae	1
Cyclosa sp.	1
Pardosa Pseudoannulata	2
Achaeranea mundulum	1
Cheracanthium hugiscium	1
Salticid	1
Araneus sp.	4
Leucauge decorata	1
Anona	
Linyphia urbasae	1
Pepper	
Tetragnatha sp.	1
Achaeranea mundulum	6
Salticids	6
Olios milleti	1
Linyphia urbasae	3
Myrmarachne plataleoides	5
Cheracanthium huiscium	4
Cyclosa sp.	3
Thiania bhamoensis	1
Leucauge fastigata	2
Shrubs and Grasses	
Cyclosa sp.	3
Tetragnatha sp.	1
Araneus sp.	2
Leucauge decorata	2
Peucetia viridana	1
Argiope pulchella	3
Achaeranae mundulum	1
Thomisus sp.	1
Argiope aemula	1
Agelena sp.	5
Pardosa pseudoannulata	1
Oxyopes lineatipes	1

Table 3. Shannon diversity index of different horticultural crops at Yercaud

	Crops	H'
1.	Coffee Plantations	1.248
2.	Flowering crops	0.874
3.	Fruit trees	1.170
4.	Other trees	1.139
5.	Pepper	0.921
6.	Shrubs & Grasses	0.999