Spider fauna in the rice ecosystem of Jammu

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ABSTRACT : Twenty species of spiders were observed in the rice ecosystem in Jammu region. The predominantly common species were under the genera *Tetragnatha, Neoscona, Oxyopes, Phidippus* and *Pardosa*. Among these, the spider population was noticed to increase gradually with the growth of rice plants and almost doubled from August to September.

KEY WORDS : Population abundance, rice ecosystem, spider fauna

Rice is an important crop throughout the world and is consumed by more than 60 per cent of the world population. In Jammu region, rice is a major kharif crop and is grown over an area of 1,06,100 ha. *Cnaphalocrocis medinalis* (Guenée), *Dicladispa armigera* (Olivier), *Hieroglyphus* spp., *Nephotettix* spp., *Cofana spectra* (Distant), *Sogatella furcifera* (Horváth), *Tryporyza* spp., *Pelopidas mathias* (Fabricius) and *Leptispa* spp. are the major insect pests of rice. Among the predators, spiders have been found to play an important role in suppression of population of various insect pests (IRRI, 1980; Kamal *et al.*, 1990). Very little information is available on the spider fauna of rice ecosystem in Jammu region. The present investigations were carried out to survey the spider fauna and estimate the abundance of spider species in rice ecosystem in Jammu region.

Four villages, *viz.*, Pangali, Chak-Kripalpur, Nodwal and Jatta Kothi were selected during kharif 1994. In each village, 40 ha paddy field was selected for weekly surveillance on population build up of spiders. Farmers of the selected fields were requested not to use pesticides. Observations were begun at tillering stage during the first week of August and continued till booting stage during first week of September. Population of spiders was recorded once a week from the selected paddy fields by visual, water pan and sweepnet methods as described by Thakur *et al.*, 1993. The collected spiders were killed using chloroform and preserved temporarily in 70 per cent alcohol. Specimens were got identified from Dr. B. K. Biswas, Zoological Survey of India, Calcutta. Data on the population of different spider species were statistically analysed.

The investigations revealed the presence of 20 species of spiders belonging to12 genera under eight families in Jammu region (Table 1). The common

Table 1.Spider fauna of the rice ecosystem in Jammu

Araneidae
Neoscona theis Walckenaer
N. mukerjei Tikader
Neoscona sp.
Leucauge sp.
Araneus mitifica Simon
Leucauge decorate Blackwall

Tetragnathidae
Tetragnatha sp.
T. andamanensis Tikader

Salticidae
Phidippus punjabensis Tikader
Phidippus sp.
Zygoballus sp.

Lycosidae
Pardosa minutus Tikader & Malhotra
P. anandalei Gravely
P. birmanica Simon

Oxyopidae
Oyopes shweta Tikader
Oxyopes sp.

Clubionidae
Cheiracanthium trivialis Thorell
Cheiracanthium sp.

Thomisidae
Thomisus sp.

Eresidae
Stegodyphus sarsinoram Karsch

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Table 2. Abundance of different spider species in rice ecosystem

Locality	Period of observation	No.of spiders belonging to family								Total spiders
		Tet	Ara	Oxy	Lyco	Sal	Clu	Tho	Era	
Pangali	Aug.1 week	18	10	8	5	2	0	1	0	44[a]
	Aug.2 week	23	11	9	6	3	6	2	1	61[a]
	Aug.3 week	24	11	10	11	6	3	0	2	67[ab]
	Aug.4 week	39	18	12	12	6	3	2	1	93[bc]
	Sept.1 week	35	17	18	16	8	6	6	2	108[c]
		139[a]	67[b]	57[b]	50[bc]	25[c]	18[c]	11[c]	6[c]	
Nodwal	Aug.1 week	20	12	13	12	8	6	3	0	74[a]
	Aug.2 week	21	9	10	12	9	9	5	3	78[a]
	Aug.3 week	28	19	14	11	11	8	5	2	98[ab]
	Aug.4 week	31	20	16	18	10	9	6	4	114[bc]
	Sept.1 week	35	22	17	18	13	12	8	7	132[c]
		135[a]	82[b]	70[bc]	71[c]	51[c]	44[cd]	27[de]	16[e]	
Chak-Kripalpur	Aug.1 week	18	9	6	3	6	4	0	0	46[a]
	Aug.2 week	17	11	9	6	4	4	3	2	56[ab]
	Aug.3 week	21	13	10	8	6	5	6	4	73[bc]
	Aug.4 week	20	14	12	9	8	7	6	3	79[c]
	Sept.1 week	23	15	13	10	8	7	7	4	87[c]
		99[a]	62[b]	50[bc]	36[cd]	32[d]	27[de]	22[de]	13[e]	
Jatta Kothi	Aug.1 week	13	9	6	5	2	0	0	0	35[a]
	Aug.2 week	19	11	8	5	4	3	3	2	55[ab]
	Aug.3 week	21	10	10	6	6	2	2	2	58[ab]
	Aug.4 week	26	16	11	9	5	2	1	1	71[b]
	Sept.1 week	36	18	13	13	11	8	3	2	104[c]
		115[a]	64[b]	48[bc]	38[cd]	27[cde]	15[de]	9[e]	7[e]	

Tet = Tetragnathidae Ara = Araneidae Oxy = Oxyopidae Lyco = Lycosidae
Sal = Salticidae Clu = Clubionidae Tho = Thomisidae Ere = Eresidae
Figures not bearing same letter in columns and in lines are statistically different from one another at 5% level of significance

species of spiders found in Pangali, Chak-Kripalpur, Nodwal and Jatta Kothi belonged to genera *Tetragnatha, Neoscona, Oxyopes, Phidippus* and *Pardosa*. Of all species *Tetragnatha* spp. were maximum in number. Okuma (1968), Chatterjee and Datta (1979) and Kamal *et al.* (1992) also reported that species of *Tetragnatha* were maximum in rice fields. Spiders under the families Thomisidae, Clubionidae and Eresidae were found in lesser numbers (Table 2).

The spider population was found to be higher in the rice field as compared to border weeds. After crop harvest, spider population in border weeds increased due to migration of insects from rice field to border weeds. The spider population increased gradually with the growth of rice plants in the field.

The population of spiders doubled in first week of September as compared to 1st week of August (Table 2). Similar observations have been made by Kamal *et al.* (1992) in Bangladesh.

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