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Control of Insect Pest with the help of Spiders in the Cotton Fields of Morshi Tahsil, District Amravati, Maharashtra State

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Introduction:

Spiders are among the most abundant insectivorous predators of Terrestrial ecosystem. Spiders are one of the most diverse animal groups in the World. Spiders are carnivorous creature. Spider plays an important role in regulating insect pests in the Agricultural Ecosystem. They mostly feed on insects, even though they may also feed on various other kinds of prey. There are 41,424 spiders species are found all over the world in almost every kind of habitat. They mainly prey on insects, even though they may also feed on various other kinds of prey.

Spiders are beneficial to human beings in the sense that they feed not only on the pests of agro ecosystem but also the pest of man such as cockroaches, flies, Mosquitoes. In households, a particular spider as the giant crab spider has been known as an effective in controlling cockroaches and other insect pests found in the domestic environment. Predatory arachnids such as spiders are an important group of biological control agents. Spiders are main predators of Cotton pests.

They have usually been treated as an important biological control agent, because there is ecological role of spiders in pest control. Use of chemical pesticides has killed natural predators in the agro ecosystems and also disturbing the natural fauna. Several toxic insecticides and pesticides are recommended to control pests in Cotton field. These chemicals insecticides and pesticides are destroying the vegetation.

The constant use of a wide range of pesticides has caused many side effects, like loss of biodiversity, the problem of secondary pests, insecticide resistance, residual toxicity, the recovery of insect pests and Environmental Pollution. Spiders consume a large number of small creatures and do not injure vegetation. Predatory arachnids such as spiders are important biological control agents.

Material and Method:

Study Area:

Morshi is the diversity rich agro-ecosystem in Amravati District. Morshi is the second largest town in the Amravati district. It is located 55 km north-east of Amravati, situated very close to the border with Madhya Pradesh, in the science southern foothills of the Satpuda ranges. Morshi and the surrounding region are also known for the cultivation of Nagpur oranges and the prominent Nal Damayanti Dam.

Morshi is located between N21°19’ and E78°0’ with an elevation on 580 meters. Cool climate in the city when compared to Vidarbha region. Summer is also not so hot as compared to other Vidarbha regions. The annual rainfall averages 880 mm. The area receives rainfall during southwest monsoon. Average temperature of the district ranges from minimum of 10^{o}C in winter to a maximum of 43^{o}C in summer with the relative humidity varying from 8-14% to 50-80%.

The spider inventory studies were conducted from November 2021 to November 2022 in the ten different localities of Morshi, Amravati district from Maharashtra state. I have selected ten microhabitats for observations in the study area viz; Cotton fields.

A survey of Spiders was carried out in Cotton Fields of Morshi Tahsil, District Amravati during November 2021 to November 2022. Spiders were collected from different areas of Cotton Fields. For collection of spiders direct searching, collected by Insect nets, Pit fall trapping, beating steak and umbrellas were used. The Spiders Specimens were identified according to Kaston spider book. The photographs were

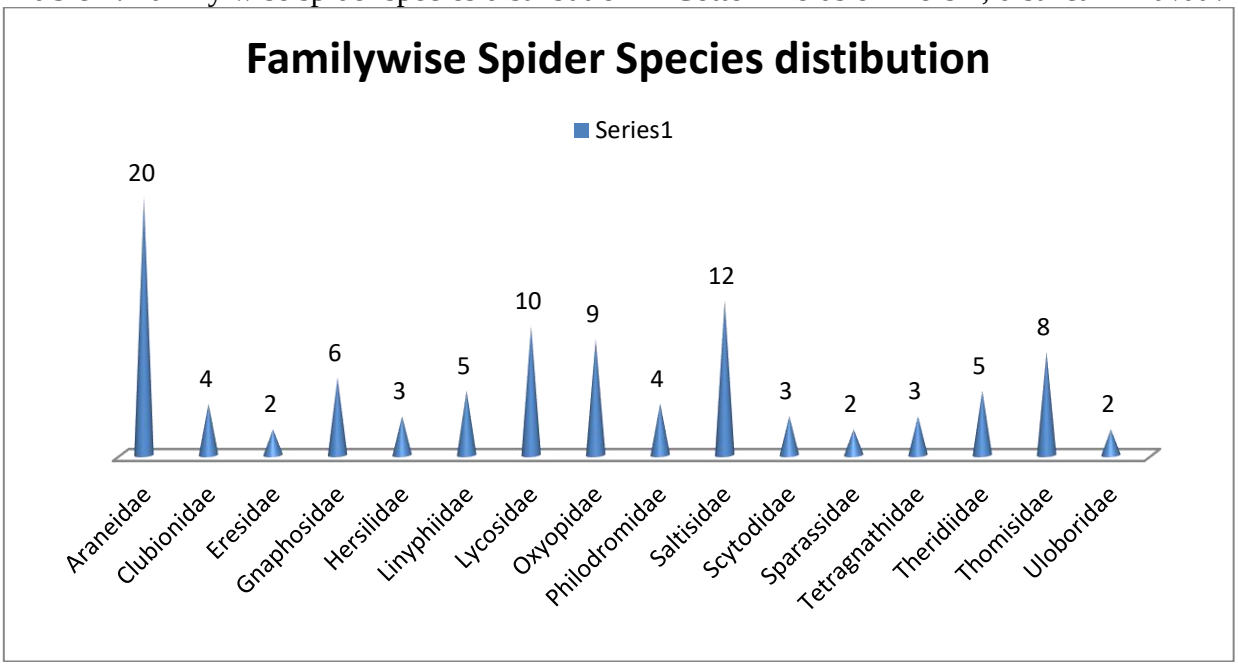
taken in different views, to get the clear eye position, pattern and shades of cephalothorax and abdomen, spines and hairs pattern.

Observation and Result:

During the present study I have reported **98 Species** belonging to **16 Families and 43 Genera of Spiders in Cotton fields of Morshi Tahsil, District Amravati, Maharashtra State.** Spiders of Families Araneidae, Clubionidae, Eresidae, Gnaphosidae, Hersilidae, Linyphiidae, Lycosidae, Oxyopidae, Philodromidae, Salticidae, Scytodidae, Sparassidae, Tetragnathidae, Theridiidae, Thomisidae and Uloboridae were recorded during the investigation. For details I have are ranging the data in a Table Format of systematic way.

Sr. No.	Family	Genera	Species
1	Araneidae	09	20
2	Clubionidae	02	04
3	Eresidae	01	02
4	Gnaphosidae	03	06
5	Hersilidae	01	03
6	Linyphiidae	02	05
7	Lycosidae	04	10
8	Oxyopidae	04	09
9	Philodromidae	02	04
10	Saltisidae	06	12
11	Scytodidae	01	03
12	Sparassidae	01	02
13	Tetragnathidae	01	03
14	Theridiidae	02	05
15	Thomisidae	03	08
16	Uloboridae	01	02
Total		**43**	**98**

Table 1: Family wise spider species distribution in Cotton Fields of Morshi, district Amravati.



Graph 1: Family wise spider species distribution in Cotton Fields of Morshi, District Amravati.

Conclusion:

Spider's predatory capacity can have an effect in decreasing densities of insect pests, when they are used to balance the effect of insecticides and Pesticides. Some spiders are among the most effective predators of leafhoppers, caterpillars, and other pests. Aphids are rarely significant pests of Cotton. Some Spiders and Spider lings are main control agents of aphids. Most spiders feeds on insects that's why productivity of crop gets increased, hence spiders are important Pests control agents. Due to destroying the pest or insects, spiders are friends of farmer.

References:

1. **Bhattacharya, G. C. (1941b).** The food and habitates of the horse spider *Heteropoda venatoria*. *Jour. Bombay nat. Hist. Soc.* (42), 821
2. **Biswas B and Biswas K.** Fauna of Sikkim, (Araneae: Spider) *State fauna series*, 2003; 9: 67-100.
3. **Gajbe U. A.** Studies on some spiders of the family Oxyopidae (Araneae: Arachnida) from India. *Rec. Zool. Surv. India*, 1999; 97 (3):31-79.
4. **Greenstone M. H.** (**1999)**. Spider Predation: How and why we Study it**,** *The Journal of Arachnology* 27:333–342.
5. **Jeyaparvathi S., Baskaran S. and Bakavathiappan G. (2013)** Biological control potential of spiders on the selected cotton pests Int. J. of Pharm. & Life Sci. (IJPLS), Vol. 4, Issue 4: April: 2013, 2568-2572.
6. **Kaston, B. J. (1970).** How to know Spiders. *M. W. C. Brown Company publishers, U. S. A.* 212 pp.
7. **Platnick, N. I. (1993).** Advances in spider taxonomy 1988-1991, with synonymies and transfers 1940-1980. *New York.* 846 pp
8. **Platnick, N. I. (2009).** The world spider catalog, version 9.5. American Museum of Natural History.