FEEDING HABITS IN SPIDER HERSILIA SAVIGNYI(LUCAS 1836), (ARACHNIDA: ARANEAE: HERSILIIDAE)

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Abstract: A survey of the spider fauna in the campus of Indian Institute of Science (IISc), Bangalore, was carried out from November 2009 to December 2010. A total of 40 species of spiders belonging to 33 genera under 14 families were studied. Amongst these the video grapy of feeding habit of Hersilid spider, Hersilia savignyi (Lucas 1836) was recorded and studied. Hersilia savignyi is a bark spider, commonly called the "two-tailed spider". It lives on the bark of trees and outer walls of buildings. Its colour closely matches that of the bark of tree trunks in which it lives. It feeds on moths, ants and other smaller spiders. It spins scant webs of irregular threads**.** When come in contact with the prey the long spinnerets are swayed rapidly and the prey is bundled in a very unique manner**,** by moving clock wise and anti-clock direction around the prey. This is a first attempt to study the feeding habits of the spider, *Hersilia savignyi* (Lucas).

Keywords: Hersilid spider, IISc., spinnerets.

Introduction: The genus Hersilia was established by Audouin, 1826, with type species caudate Audouin 1826. Since the establishment of the genus only six species namely longixulva, orvakalensis, savignyi, striata, sumatrana and tibialis are reported from Indian sub-continent. While making documentary record on Spider diversity at IIsc.(Indian Institute of Science), Bangalore, it is observed and recorded the unique feeding habit of *Hersilia savigyni.* Commonly called two tailed (two Posterior spinnerets are very long(Fig.6) /Bark spider, Inhabits on the bark of tree trunks. This species is most commonly seen on the bark of trees and is very well adapted in respect to its habitat. The general colouration of the body is dark brownish which highly resembles the bark on which it stands. The imitation is so good that it is extremely difficult to locate a stationary spider on bark even from a short distance. They largely distributed at Chhattisgarh, Madhya Pradesh, Karnataka , Maharashtra, Uttar pradesh, Tamil Nadu, Orissa, West Bengal, Jharkhand, Bihar and Assam.

Diagonstic characters: Body dorsally provided with varying colour from quite pale to nearly black; abdomen with a black rim, transverse stripe and a median longitudinal black bar in front. Legs and palps are banded. Clypeus considerably exceeding ocular quadrangle, with a carapace less than half the length of the femur of the first leg as long as the abdomen, or longer. Colulus prominent, Legs are very long, body very flat, but with the cephalic region with the eyes is much elevated above the thoracic region(Fig 5). The epigyne bilobate, the lobes separated by deep demarkcation. Both male (Fig.3) and female (Fig.4) are located. Male is larger than the female.

Fig. 3 - *Hersilia savignyi* MALE

Fig. 4 *Hersilia savignyi* FEMALE

Fig. 5 - Head with eyes is raised from the body surface

Fig. 6 - Highly elongated posterior spinnerates

Study area: The premises of Indian Institute Science (IISc.) is selected for the project due to the wide coverage of dense vegetation which supports lot of spider species. It is situated in Bengaluru Urban, and its geographical coordinates are 13° 1' 1" North, 77° 34' 1" East. Out off coverage area of 400 acres approximately 120.93 acres space has been selected for documentary record of spiders, in which located *Hersilia savignyi* by visual method(Fig.1). Then the feeding habit vediograpy carried out. Four areas are surveyed in the IISc, campus. (Fig.1). The feeding habit of *Hersilia savignyi* is recorded and studied.

Fig. 1 area surveyed in the IISc.Campus

Materials and methods :

Materials:-Digital Camera EOS 500D with 100mm Macro lens,
-Tripod
-30X hand lens.
-Stereo binocular microscope.
-LED torch etc. are used

Method: *Hersilia savignyi* located by visual method(fig.2) with hand lens of 30X. Observation made around the tree trunk. It is an arborial spider found on bark of tree trunk on 18th of April 2010 in an area 3, in front of structures laboratory at about 12.30pm in a head down position. Highly resembles the bark. The imitation is so perfect that, extremely difficult to locate even from a short distance. In a resting position it presses its flattened body against the bark of tree trunk blending perfectly with the surrounding bark casting little or no shadow to prove its presence. Normally solitary, moving swiftly from one place to another. Very active and swift runner. moving very fast and Camouflages the bark. Can be called as "bark mimicking spider". When disturbed it erects its posterior spinnerates and suddenly takes swift movement to the opposite side of the tree in micro second. One can see only a blurring part of the bark. It spins scant webs of irregular threads on the bark, which indicates presence of *Hersilia savignyi*.

Fig.2 *Hersilia savignyi* located by visual method using hand lense.

Feeding habit: It is a predator and Carnivore feeds only on pedestrian prey, such as moths, ants, and other smaller insects and spiders inhabiting the tree trunk. Hersilia savignyi is cryptic (hidden) since their flat bodies are well camouflaged. Only the silk threads on the tree trunks reflecting in the sunshine will help to spot it (Dippenaar-Schoemann & Jocque 1997). Videography of feeding habit of female spider was recorded. A unique way of capturing the prey was observed. It does not spin a web, instead captures the prey directly in very special manner.

For feeding its preparation is unique from other types of web weaving spiders. It generally spreads silk threads on the surface of bark here and there around the trunk of the tree in a haphazard manner. Its plan is to cover most area by spreading silk thread without the knowledge of its prey. Those insects which are moving in and around finds hurdles to cross over the silk threads as a result the rate of speed will ceases and stuck at one or other places, by which it gets signal and it jumps over it and fix it with silk thread on to the trunk to prevent from escape. Facing away from the prey, but the spinnerets towards the prey, the prey is bundled in a unique manner by moving clock wise 3 or 4 times around it and then wait for few seconds possibly let silk thread stick firmly on to the prey and allow to dry before winding further silk thread in anti-clock direction 3 to 4 times around it. It repeats the same for several times till the prey is totally bundled in a band of silk. During this processes hardly it takes rest. At intervals, it stares at it to get confirm, whether it is fully immobilized or not. At certain interval it trys to press the pray sitting on it, so that it should not regain the strength to escape from the banded silk. Also trys to inject venom to paralise it. The interesting thing is that it spends few hours of time struggling to take care not to escape. Then it is bitten and body fluid is consumed.

Results and discussions: Chemically silk is a fibrous protein, the fibroin, insoluble in water. It comes from spigots of the spinnerates in liquid form and hardens immediately, polymerizing as it is pulled out. It doesnot break because, silk may stretch as much as one fourth its length(spiders and their kin by Herbert W. Levi & Lorena R. Levi.) In almost all spiders the claws on the tips of legs are used to handle silk. Hersilia savignyi does't use the claws. When it makes anticlock circles the threads must unwind the prey. But this does not happens, because it encircles the prey in clock and anticlock manner with the silk thread rapidly without allowing the silk to dry. Prey or the predator cannot locate Hersilia savignyi as it camouflages the bark of the tree, it inhabits. Hersilia savignyi do not build webs like orb weaver spiders but attack pedestrian prey. The cephalic region is elevated from the cephalothorax. This makes hersilid to see the prey during wrapping through its posterior rows of eyes.

Conclusions: One can undertake research work on *Hersilia savignyi* , as the climatic conditions support the spider fauna to multiply and there is no human interference in their habitats. Research work on their web construction, physiology, reproduction and life history can be under taken. Comprehensive account of this sps. has not been available so far. So it is suggested that, studies on the biology of *Hersilia savignyi* should be under taken in future.

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