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PARASITES AND PREDATORS OF *CLETUS SIGNATUS* WALKER (HETEROPTERA : COREIDAE)

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Cletus signatus infests a wide range of host plants in north-western U. P. One ectoparasite, *Leptus* sp , and two predators, r reying mantid (*Hierodula* sp.) and *Araneus* sp. of spider are observed as natural enemies of this bug. Adults and nymphal instars with a load of 5 to 15 mite larvae become quite sluggish, die later on,

Cletus signatus is a phytophagous, succivorous bug which infests many wild and cultivated plants, *viz. Amaranthus spinosus*, *A. viridis*, *A. oleracea*, *Lagenaria sceraris*, *Chenopodium album*, *C. anthelminticum*, Lucerne, millets, cowpea etc. in north western Uttar Pradesh Pradesh (Dhiman, 1983). Narula (1969) made observations on intra-cytoplasmic microorganinism of this insect and Singh (1971) on endosymbiotic microorgani ms Later on Singh & Pant (1976) studied the symbiotes of this bug Since *C. signatus* causes damage to the aforesaid economic plants, hence, knowledge of its naturally occurring enemies is significant from control point of view.

During the course of present studies, one ectoparasite, *Leptus* sp., and two predators, namely preying mantid (*Hierodula* sp) and spider (*Araneus* sp.) of *C signatus* have been recorded.

Leptus sp. (Acarina : Erythraeidae) : Larvae of this mite have been observed parasitizing the nymphal and adult stages of the *C. signatus* Percentage of parasitisation in the field catches population of bug was seen 24.19 as maximum and 2.0 as minimum (Table I). The table also reveals that maximum parasitization occurs during rainy months, July to September. Cervical membranes, wing axillaries, pleuron of abdomen, tergal and sternal joints of abdomen have been examined as preferential attachment site for the larvae on the body. One or two larvae do not have any marked influence on host activity but a load

of 5 to 15 larvae make the host bug sluggish and weak. After attaining full engorgement, the larval mites drop off from the heavily parasitized bug and the host dies due to dehydration. Further, *Leptus* sp. adults were seen predating on the eggs of *C. signatus*. During feeding, mite pierces the egg chorion and suck the egg contents. Such eggs fail to develop and the egg chorion collapses.

Table I. Percentage of parasitization in the field catches population of *C. signatus*.

Date of catches	No. of bugs caught	No. of parasitized bugs	Parasitization (%)
2 May 1985	50	01	2.0
4 June 1985	60	05	8.33
16 July 1985	55	10	18.18
5 Aug 1985	62	15	24.19
10 Sep 1985	75	18	24.00
15 May 1986	45	Nil	Nil
12 June 1986	58	03	5.17
18 July 1986	65	10	15.38
7 Aug. 1986	82	15	18.29
20 Sep. 1986	74	16	21.62

Preying Mantid (Mantoidea) : *Hierodula* sp. of preying mantid has been observed predating on nymphal and adult *C. signatus* Population of both the bug and predator increases manyfolds during rainy months due to favourable climatic conditions. The bugs become easy prey of mantid specially the coiting bugs which could not escape easily.

Araneus sp. (Arachnida) : Adults of *Araneus* and other spiders are observed feeding on nymphal as well as adult bugs. Though, one or two spiders only seen on a plant of *Amaranthus spinosus*, but these are sufficient to reduce considerable number of *C. signatus* on this favourate host plant of this bug. Furthermore, *Araneus* sp. mimics with the inflorescence of aforesaid plant and bugs feeding on this part fall prey easily of this predator.

Food preference : Eggs, nymphal instars and adults of *C. signatus* were supplied to each predator separately in wooden wire gauze cage. It was observed that preying mantid prefers to feed on older nymphal instars (3rd, 4th & 5th) and adult bugs while the *Araneus* sp prefers younger instars (Ist and 2nd). *Leptus* sp. of mite feeds only on the egg content while its larvae parasitize the adults and nymphs.

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