

Biology of *Campsomeriella collaris* Fab., a Natural Enemy of the Coconut White Grub, *Leucopholis coneophora* Burm.

Chandrika Mohan and P. Rajan

CPCRI, Regional Station, Kayangulam, P.O. Krishnapuram – 690 533,
Kerala, India

The larvae of cockchafer beetles are important pests of a wide variety of crop plants. The grubs cause damage by feeding on the roots or tubers of host plants. The major white grub species attacking coconut and its intercrops in India is *Leucopholis coneophora* Burm. (Coleoptera: Melolonthidae). *L. coneophora* has an annual life cycle with peak grub population in July – October (Abraham and Mohandas, 1988; Chandrika and Vidyasagar, 1993)

Campsomeriella collaris Fab. (Hymenoptera: Scoliidae) is an ectoparasitic wasp parasitizing the grubs of *L. coneophora* and accounts for a considerable degree of bio - suppression of the pest in the field. This species is also recorded as a natural enemy of the arecanut white grub *L. burmeisteri* Blan. (Padmanabhan *et al.*, 2003). Population of the wasp in the field is low during rainy season (May-July) and high during August to November when the *L. coneophora* grubs also attains its peak in field.

To study the biology of the parasite, cocoons of the wasp were collected from the coconut gardens infested by the white grub and were reared in the laboratory to adult stage in plastic containers with soil. Adults were fed with honey soaked in cotton. Full - grown grubs of *L. coneophora* were provided to the adults for egg laying in glass troughs along with soil. Female wasp burrows into the soil in search of host, paralyses it by stinging and lays one egg on the ventral side of the fifth abdominal segment of the host grub. Maximum of three grubs were parasitised by a single adult wasp under laboratory condition. The egg hatches in 2 days.



Fig.1. *Campsomeriella collaris* adult wasp.



Fig.2. Larva of *Campsomeriella collaris* on the white grub.

The newly hatched apodous parasitoid larva punctures the host body and sucks the haemolymph. Feeding continues at the same point throughout the parasitic life till the grub is fully exhausted. For pupation, the parasitoid spins silken cocoon with a loose outer covering and thick and tight inner shell. The colour of cocoon is golden brown. Pupation takes place inside the soil cavity. Developmental particulars of the wasp and the measurements of the various stages are given in Table - I. The parasitoid could be reared on grubs of other white grub species also, but appeared smaller in size compared to those reared on *L. coneophora*. Conservation of the natural fauna is highly desirable.

Table 1. Developmental particulars and measurements of *C. collaris*

Stage of <i>C. collaris</i>	Length (mm)	Breadth (mm)	Developmental period (days)
Egg	2.1± 0.124	-	2.0
Larva	17.54 ± 0.918	6.65 ± 0.510	5.0 ± 0.816
Pupa	20.32 ± 2.502	25.8 ± 1.873	
Adult Female	25.09 ± 1.506	38.48 ± 1.559*	53.4 ± 3.657**
Male	18.89 ± 0.732	30.69 ± 0.915*	45.8 ± 3.552**

* measurement wing expanded , **adult longevity

References:

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