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Laboratory Studies on the Host Range of *Curinus coeruleus* Mulsant, an Exotic Predator of the Subabul Psyllid

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The ladybird beetle *Curinus coeruleus* Mulsant was introduced into India from Thailand during October 1988 for the control of subabul psyllid *Heteropsylla cubana* Crawford (Jalali and Singh, 1989). This predator is a voracious feeder of the psyllids (Nakahara *et al.*, 1987). Apart from *H.cubana,* the beetle is also known to feed on *Nipaecoccus nipae* (Maskell) (Nakahara *et al.*, 1987), *Planococcus citri* (Risso), *Coccus viridis* (Green) (Wagiman *et al.*, 1990), *Chrysomphalus aonidum* (Linnaeus), *Aphis nerii* Boyer de Fonscolombe, *Aleurodicus dispersus* Russel (Funasaki *et al.*, 1988) and Aphis gossypii Glover (Napompeth and Manecratana, 1990) in other countries. Hence a study was conducted in the laboratory to find out the host range of C.coeruleus in India.

The study was made under a no choice condition to know the suitability of the hosts tested (Table 1). The adult beetles and grubs taken from a laboratory culture were introduced separately into rearing jars (9 x 18.5 cm) containing the prey on infested twigs. The cut ends of the infested twigs were dipped in water kept in small vials to keep them fresh. The beetles and grubs were observed for their feeding, and the most preferred host species were used to study the biology of *C.coeruleus*.

Among the different hosts tested, *C.coeruleus* preferred to feed on *F.virgata, C.cajani* and *O.tarandus*. Comparative biology of *C.coeruleus* was studied using eggs of *O.tarandus* and nymphs of *H.cubana* the standard host. Observations revealed that incubation period, larval duration and total life cycle of *C.coeruleus* were significantly lesser when fed with *H.cubana* than with *O.tarandus* (Table 2). However, adult longevity, fecundity, rate of reproduction and hatchability of *C.coeruleus* did not differ significantly between the two hosts. It appears that *O.tarandus* is an effective alternative host for *C.coeruleus*. Further, population dynamics studies on *C.coeruleus* and *H.cubana* indicated that during the months of April and

Table 1. Host insects tested for *Curinus coeruleus*

Name of the host	Family	Stage of the host
Aphis craccivora Koch	Aphididae	Nymphs and Adults
Myzu persicae (Sulzer)	- do -	- do -
Toxaptera odinae van der Goot	- do -	- do -
Toxaptera citricidus Kirk.	- do -	- do -
Ceroplastodes cajani (Mask.)	Coccidae	- do -
Coccus viridis (Green)	- do -	- do -
Ferrisia virgata (Ckll.)	Pseudococcidae	- do -
Planococcus citri (Risso)	- do -	- do -
Oxyrhachis tarandus(F.)	Membracidae	Eggs
Nilaparvata lugens Stal.	Delphacidae	Nymphs and Adults

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Table 2. Biology of *Curinus coeruleus* on *Heteropsylla cubana* and *Oxyrhachis tarandus*

Stage	No. of days ± S.D.		't' value (P = 0.05%)
	H. cubana	*O. tarandus*	
Egg	6.8 ± 1.03	7.6 ± 0.52	2.20
Larva			
I Instar	3.9 ± 1.29	7.8 ± 0.63	8.48
II Instar	3.4 ± 0.52	4.6 ± 0.52	5.17
III Instar	4.7 ± 0.82	4.4 ± 0.52	NS
IV Instar	7.7 ± 0.48	7.1 ± 0.57	2.55
Total larval period	19.7 ± 1.77	23.9 ± 1.20	6.22
Prepupa	2.4 ± 0.70	1.8 ± 0.92	NS
Pupa	7.1 ± 0.32	7.1 ± 0.57	NS
Egg to adult	36.0 ± 2.75	40.4 ± 1.90	4.17
Adult longevity			
Male	88.9 ± 8.20	79.8 ± 5.98	NS
Female	69.1 ± 7.75	64.7 ± 5.42	NS
Fecundity *	715.8 ± 218.59	797.0 ± 114.08	NS
Fecundity/female/day *	14.15 ± 3.23	16.12 ± 1.92	NS
Hatchability	87.32%	85.47%	NS

* eggs

May, there is a decline in psyllid population which is later followed by that of *C.coeruleus* (Diraviam and Viraktamath, 1990). However, these are the months when populations of *O.tarandus* are high on plants like *Albizzia* spp. and *Cassia* spp. Hence, *O.tarandus* may be used as supplementary food for *C.coeruleus* during off-season in the laboratory.

KEY WORDS : *Curinus coeruleus*, host range, *Heteropsylla cubana*, *Oxyrhachis tarandus*.

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