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Record of *Isotima* sp. (Hymenoptera: Ichneumonidae) from pink borer, *Sesamia inferens* (Walker)

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The pink borer, *Sesamia inferens* (Walker) is a polyphagous pest and attacks many crops viz., rice, wheat, maize, sorghum, sugarcane, finger millet etc (Majumder, 2020). Due to the availability of one or the other host crops round the year, the pink borer is found throughout the year. However, during the peak winter (December to February) its activity is greatly reduced in sugarcane ecosystem but in a situation when paddy is grown near sugarcane field, it gets ready access to the adjoining paddy stubbles (after harvesting) during winter months. The larvae feed gregariously in the tillers of stubbles during winter months (Calora and Reyes, 1971). A large number of parasitoids were recorded on *S. inferens* i.e., *Trichospilus diatraeae*, *Cotesia* (*Apanteles*) *pallipes*, *Tropobracon scoenobii*, *Coccygomimus (Piimpla) laothoe*; *Devorgilla* sp., *Temelucha* sp., *Stenobracon nicevillae* (Rao *et al*., 1967 and Shepard *et al*., 1987).

Surveys were conducted in harvested field of paddy stubbles near sugarcane field at the research farm of ICAR-IISR, Lucknow. Different phases of development of the pink borer (larvae as well as pupae) and its parasitoids were collected in the tillers of paddy stubbles during November 2020 to February 2021. Further, different instars of larvae were kept in glass jars (15 x 2.5 cm) with tillers of paddy (as food) for development at room temperature. During different phases of development of larvae/pupae, a light brown cocoon was collected from glass jar and kept for emergence of parasitoid at 26 ± 2°C and 75 ± 5% relative humidity in BOD. On the completion of the development, adult parasitoid found its way out of the cocoon through a circular aperture which it cut on one side of the cocoon and it was identified as *Isotima* sp. This is the first record of *Isotima* sp. reared from stubble-inhabiting larvae of *S. inferens* in rice ecosystem. The males have slender body and absence of the white band in the antennae. It however has an additional white band on the abdominal segment.

Isotima sp. is a solitary ecto prepupal parasitoid of sugarcane top borer in India. It attacks the prepupal stage and deposits an egg either on the prepupa or near its vicinity (Gupta, 1958 and Kalra and David, 1967). The colour and texture of the cocoon of *Isotima* sp.depends upon the season through which it has to pass in the pupal stage (Ahmad and

Mathur, 1945).A long and rigorous winter imposes on the grub an equally long period of hibernation and calls for a compact and tough cocoon which one finds in the field during winter months. The silken materials used by the grub in spinning this cocoon is - light brown in rice ecosystem but dark brown in sugarcane ecosystem. It is interesting to note that the size of the cocoon varies not only with the environmental conditions, food etc,which affect the size of the grub, but also according to the sex,so much that the sex of the adult that would emerge from a cocoon can easily be predetermined by taking measurements of the cocoon. Under ordinary field conditions, the parasite goes into hibernation in its larval stage along with the host during winter months in sugarcane ecosystem (Baitha *et al*., 2017).

Cocoon of *Isotima* sp on paddy tiller

Circular hole upper side of cocoon

Male of *Isotima* sp.

The parasitoid *Isotima* sp. was first recorded and described by Rohwer (1918) from Java (Indonesia) on *Scirpophaga nivella intact* Snellen, the white moth borer of sugarcane and named as *Eripternimorpha javensis*. Indian specimens were erroneously identified as *Melcha ornatipennis* Cameron (1907) and all the work was carried out under this name till the misidentification was pointed by Townes *et al.* (1961) supported by Gupta (1961).It has been established that the ichneumonid parasite of top borer from Java as *Eripternimorpha javensis*,is a species belonging to the genus *Isotima* rather than *Eripternimorpha*. Various workers (Mathur,1942;Ahmad and Mathur ,1945 and Box,1953) mentioned that *S.nivella* as its only host but Khanna (1953,1954 and 1955) and Varma and Maninder (1981) reported as larval parasite of top shoot borer (*S.nivella*), stem borer (*Chilo infuscatellus*) and Gurdaspur borer, *Acigona Steniella* whereas Bennett (1965) opined that this parasite doesn't normally attack stem borers. It is also reported on yellow rice stem borer, *Scirpophaga incertulas* and Gyrinid beetle, *Dineutus unidentatus* (Vazirani, 1952; Gupta, 1964 and Beg and Khan, 1982).

Isotima sp. is a pre pupal parasite, and many times more effective than that of an egg parasitoid . Further studies need to be carried out to develope protocols for its mass rearing in the laboratory on an alternate host, release technique, taxonomical study and survival in the field.

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