



Research Note

Record of *Nipponaetus haeussleri* (Uchida) (Hymenoptera: Ichneumonidae) as an egg parasitoid of sugarcane top shoot borer, *Scirpophaga excerptalis* Walker from India

A. SIVARAMAN and S. MANICKAVASAGAM*

Department of Entomology, Faculty of Agriculture, Annamalai University, Chidambaram 608 002, Tamil Nadu, India.

*Corresponding author E-mail: drmanicks2003@yahoo.co.in

ABSTRACT: During routine surveys for egg parasitoids of sugarcane borers in the Cauvery Delta zone of Tamil Nadu, *Nipponaetus haeussleri* (Uchida) (Hymenoptera: Ichneumonidae) was recovered from an egg mass of sugarcane top shoot borer, *Scirpophaga excerptalis*. This is the first report of an ichneumonid from a lepidopteran egg mass.

KEY WORDS: *Scirpophaga excerptalis*, *Nipponaetus haeussleri*, biological control

(Article chronicle: Received: 27.12.2010; Sent for revision: 28.12.2010; Accepted: 10.01.2011)

The top shoot borer, *Scirpophaga excerptalis* Walker (Lepidoptera: Pyralidae), is unique among the moth borers of cane in that it infests at all stages of crop growth. It is one of the most destructive pests of cane in India (as a regular and major pest in subtropics) and Pakistan, though distributed in Myanmar, Sri Lanka, China, Formosa, Japan, Philippines and Thailand (Atwal and Dhaliwal, 2007).

Egg parasitoids *Trichogramma chilonis* Ishii (= *T. australicum* Girault & Viggiani = *T. confusum*), *T. chilostraeae* Nagaraja and Nagarkatti (Sallam, 2005), *T. evanescens minutum* Riley (Mukunthan, 1986), *T. fasciatum* (Perkins) (Pandya, 1997), *T. japonicum* Ashmead (Raghupathy, 1997), *Telenomus beneficiens* Nixon, *T. dignoides* Nixon, *T. dignus* Gahan, *T. rowani* (Gahan) (Rajmohana, 2006), *Tetrastichus* sp. (Dorges and Murthy, 1967) and *Trissolcus* sp. (Mukunthan, 1986) have been reported on *S. excerptalis*.

During our routine surveys for egg parasitoids of cane borers (Sivaraman, 2007), we collected 95 egg masses of *S. excerptalis* from Cauvery Delta region of Tamil Nadu, out of which 12 were parasitized by *Telenomus beneficiens*. From another egg mass collected from Pudhuthurai village, Sirkazhi taluk, Nagapattinam district, a pair of *Nipponaetus haeussleri* (Uchida) (Hymenoptera: Ichneumonidae: Cryptinae) was recovered and this is the first report of an ichneumonid from a lepidopteran egg mass.

Nipponaetus is a small genus of the Old World tropics and is recorded from Thailand, Madagascar, China, India,

Korea, Philippines and Japan (Uchida, 1933). Earlier host records of *Nipponaetus* including *Cydia molesta* from Japan (Busck, 1916 as quoted by Broad et al. 2004) and tortricid fruit moths as (*Phaeogenes haeussleri*) (Garman, 1940) are doubtful as reported by Broad et al. (2004). They further mentioned that the specimens of *N. haeussleri* at The Natural History Museum, London were all females from Cuttack, Orissa, India submitted by the Commonwealth Institute of Entomology ex spider eggs.

After the emergence of *N. haeussleri*, the egg mass was dissected and there were two pupal cases inside, with faecal pellets embedded within the fibrous matrix of the egg mass. The two larvae might have fed on all the eggs within the egg mass, thus in the strict sense it may be a predator just like *Tetrastichus* sp. (Eulophidae) from *Scirpophaga incertulas* (Walker) on rice. However, our attempts to recover more number of *N. haeussleri* from the same area and nearby areas in the Cauvery Delta failed indicating that its occurrence might be less frequent. Further, a pair of parasitoids from an egg mass clearly indicates family planning by the mother so that the emerging pair can take care of the next generation, unaffected by the number. However, further attempts are necessary to confirm their efficiency in the biological control of *S. excerptalis*.

ACKNOWLEDGEMENT

The authors are thankful to Dr. Gavin Broad, Natural History Museum, London, for confirming the identity of the parasitoid.

REFERENCES

- Atwal, A. S. and Dhaliwal, N. K. 2007. *Agricultural pests of South Asia and their management*. Kalyani Publishers, Ludhiana, New Delhi, India.
- Broad, G. R., Laurence, N. M. and Quicke, D. L. J. 2004. The genus *Nipponaetes* (Hymenoptera: Ichneumonidae: Cryptinae) in Costa Rica, with a reassessment of the generic limits. *European Journal of Entomology*, **101**: 651–655.
- Dorges, K. and Murthi, T. K. 1967. Pests of sugarcane and their control. *Extension Bulletin of Department of Agriculture*, Pune, **No. 12**, 1–5.
- Garman, P. 1940. Oriental fruit moth parasites. *Connecticut Agricultural Experimental Station New Haven Circular*, **140**: 29–47.
- Mukunthan, N. 1986. The top shoot borer, *Scirpophaga excerptalis* Walker, pp. 93–120. In: David, H., Easwaramoorthy, S. and Jayanthi, R. (Eds.). *Sugarcane Entomology in India*, Sugarcane Breeding Institute, I.C.A.R., Coimbatore, India.
- Pandya, H. V. 1997. Biological control of sugarcane pests. *Cooperative Sugar*, **28**: 684–686.
- Ragupathy, P. 1997. Bio-efficacy of *Trichogramma* against sugarcane early shoot borer, *Chilo infuscatellus* at various levels of release. B.Sc. (Ag) final year project report submitted to Faculty of Agriculture, Annamalai University, Annamalainagar, Tamil Nadu, India, 53 pp.
- Rajmohana, K. 2006. A checklist of the Scelionidae (Hymenoptera: Platygastroidea) of India. *Zoos' Print Journal*, **21**: 2506–2613.
- Sallam, M. N. 2005. A review of sugarcane stem borers and their natural enemies in Asia and Indian Ocean Islands: An Australian perspective, pp. 53–65. Final report – SRDC Project BSS 280 overseas sugarcane quarantine and emergency response planning, Gordonvale, Australia.
- Sivaraman, A. 2007. *Diversity and seasonality of egg parasitoids on sugarcane borers*. M.Sc. (Ag.) thesis, Annamalai University, Annamalainagar, Tamil Nadu, India.
- Uchida, T. 1933. Über die schmarotzerhymenopteren von *Grapholitha molesta* Busk in Japan. *Insecta Matsumurana*, **7**: 153–164.