

DOI: 10.55278/AWXE5368

**First report of *Chelonus* sp. (Hymenoptera: Braconidae); an egg larval parasitoid of fall armyworm, *Spodoptera frugiperda* (J. E. smith) (Lepidoptera: Noctuidae) in Anand, Gujarat, India**

***N. M. Patel, N. B. Patel and Raghunandan, B. L.***

*AICRP on Biological Control of Crop Pests, Anand Agricultural University, Anand, Gujarat India (388110)*

***Corresponding author: nehampatel25@gmail.com***

A new invasive pest fall armyworm (FAW), *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae) has invaded India and reported in Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Tamil Nadu, Telangana states infesting maize crop (Shylesha *et al.*, 2018; Sisodiya *et al.*, 2018). It is a serious maize pest that is native to the tropical and subtropical regions of America and is also known to target more than 100 hosts. It is a well-known pestiferous insect pest, making it one of the most serious economic pests due to its great dispersal capacity, broad host range, and high reproduction. In maize, yield losses from *S. frugiperda* may reach up to 70% of total production (Ayala *et al.*, 2013).

General survey was carried out during *kharif* season of the year 2021 to document the natural enemies of fall armyworm infesting maize in Kanisa (22°23'2'' N 72°41'13'' E), Sandeshar (22°31'7'' N 72°52'47'' E) and Sihol (22°30'53'' N 72°52'22'' E) Anand district of Gujarat, India. During the survey, few larvae were found less active with reduced

feeding. Initially these larvae were suspected of Nuclear Polyhedrosis Virus (NPV) infection (Raghunandan *et al.*, 2019). Later, these suspected larvae were collected in ventilated plastic container (5.5 × 4.5 cm) and brought to the laboratory. The haemolymph of the collected larvae were observed for NPV occlusion bodies and found negative. After 3-4 days, creamish white larvae were found emerging from the infected FAW larvae. It was confirmed as egg larval parasitoid *Chelonus* sp. (Hymenoptera: Braconidae). Hence, we documented egg larval parasitoid *Chelonus* sp. (Hymenoptera: Braconidae), which has a potential for biological control of fall armyworm, *S. frugiperda*. The egg larval parasitoid *Chelonus* sp. attacks the egg stage and completes its development in the larval stage of the host. The larva of *Chelonus* sp. was creamy white in colour and cylindrical or spindle in shape (Christa *et al.*, 1994) (Figure 1). The cylindrical shaped cocoon was constructed of fine white silken threads secreted by the silk glands of the last instar larva and later stage turned into brown colour (Hafez *et al.*, 1980) (Figure 2).



**Fig. 1.** *Chelonus* sp.: A potential egg larval parasitoid of fall armyworm, *S. frugiperda*



**Fig. 2. Pupa of *Chelonus* sp.**



**Fig. 3. Adult of *Chelonus* sp.**

**References:**

Ayala, R. O., Navarro, F. and Virla, E. G. 2013. Evaluation of the attack rate and levels of damages by the fall armyworm, *Spodoptera frugiperda* (Lepidoptera: Noctuidae) affecting corn crops in the northeast of Argentina. *Revista de la Facultad de Ciencias Agrarias*, **45** (2): 1-12.

Christa, G. B., Wyler, T., Pfister-Wilhelm, R. and Lanzrein, B. 1994. Biology and morphology of the parasitoid *Chelonus inanitus* (Braconidae, Hymenoptera) and effects on the development of its host *Spodoptera littoralis* (Noctuidae, Lepidoptera). *Invertebrate Reproduction and Development*, **25** (2): 143- 158.

- Hafez, M., Tawfik, M. F. S. and Ibrahim, A. A. 1980. The immature stages of *Chelonus inanitus* (L.) a parasite of cotton leafworm, *Spodoptera littoralis* (BOISD), in Egypt. *Dtsch. Ent. Z., N. F.* 27, Heft I-III, Seite 29-38.
- Raghunandan, B. L., Patel, N. M., Dave, H. J. and Mehta, D. M. 2019. Natural occurrence of nucleopolyhedrovirus infecting fall armyworm, *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae) in Gujarat, India. *Journal of Entomology and Zoology Studies*, 7 (2): 1040-1043.
- Shylesha, A. N., Jalali, S. K., Gupta, A. and Varshney, R. 2018. Studies on new invasive pest *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae) and its natural enemies. *Journal of Biological Control*, 32 (3), <https://doi.org/10.18311/jbc/2018/21707>
- Sisodiya, D. B., Raghunandan, B. L., Bhatt, N. A., Verma, H. S., Shewale, C. P., Timbadiya, B. G. and Borad, P. K. 2018. The fall armyworm, *Spodoptera frugiperda* (J.E. Smith) (Lepidoptera: Noctuidae). First report of new invasive pest in maize fields of Gujarat, India. *Journal of Entomology and Zoology Studies*, 6 (5): 2089-2091.

*MS Received 08 July 2022*

*MS Accepted 10 August 2022*