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First ever report of beet armyworm, *Spodoptera exigua* Hubner (Noctuidae: Lepidoptera) on okra (*Abelmoschus esculentus* L. Moench) from Gujarat, India

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Abstract
A field study was conducted on okra (*Abelmoschus esculentus* L. Moench) during summer and *kharif* 2015 at Anand Agricultural University, Gujarat. During the study period infestation of beet armyworm, *Spodoptera exigua* Hubner (Noctuidae: Lepidoptera) was recorded on okra (*A. esculentus*). The larvae feed on the foliage of plants and can completely defoliate at early stage of okra. *S. exigua* moths that lack contrasting transverse (black, brown, white) lines on the forewings. Orbicular spot is round and light or yellowish brown with a white margin, surrounded by a thin black margin. Earlier, *S. exigua* was not recorded from Gujarat. So, the present study is the first report of *S. exigua* on okra from Gujarat, India.

Keywords: *Spodoptera exigua*, okra, Gujarat

1. Introduction
Okra (*Abelmoschus esculentus* L. Moench) is the only vegetable crop of significance in the Malvaceae family. Okra is known by many local names *viz.*, *Lady's finger* in UK, *Gumbo* in the United States of America, *Guino-gombo* in Spanish, *Guibeiro* in Portuguese and *behind* in India. It is usually consumed for its green tender fruits as a vegetable in a variety of ways. The fruits are rich in vitamins, calcium, potassium and other mineral matters. The seed oil of okra is rich in unsaturated fatty acids such as linoleic acid which is essential for human nutrition, its mature fruit and stems contain crude fiber, which is used in the paper industry and the okra fiber possesses an excellent quantity of cellulose [4]. It has been called "a perfect villager's vegetable" because of its robust nature, dietary fibers and distinct seed protein balanced in both lysine and tryptophan amino acids [5]. The average production of okra in India is about 57.84 lakh tones and productivity 11.6 tones/ha [6]. In India, it is cultivated in 5.28 lakh hectares with a production of 61.46 lakh tones and productivity of 11.6 MT/ha during 2016-2017 [1]. One of the major constraints for okra production is heavy infestations caused by several insect pests which not only exert quantitative loss but also caused qualitative loss to the crop. As many as, 72 insect species have been recorded on okra [6]. *Spodoptera exigua* commonly known as beet armyworm. It is polyphagous pest reported from more than 170 plant species over 30 families [7] and having worldwide distribution [9].

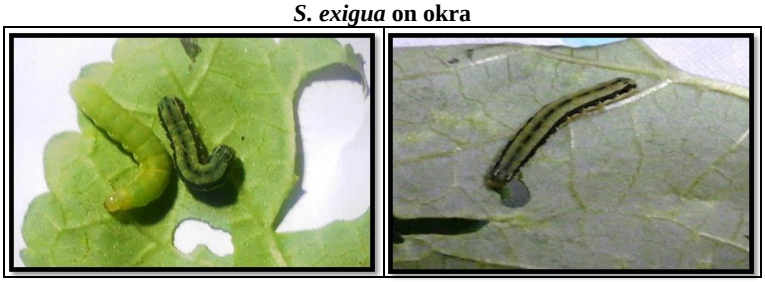
2. Materials and Methods
The present study was conducted to know the activity of different insect pests of okra during 2015 at Anand Agricultural University, Anand, Gujarat. The pest present on okra was collected and reared in laboratory. Of the collected pests, lepidopteron pest reared till adult emergence. Larvae were collected from the field and brought to the laboratory and reared under laboratory condition. Moths emerged out from the collected larvae were killed, pinned and dried. Specimens have been sent in the division of Entomology, Insect Identification Service, IARI, New Delhi.

3. Results
In the present study infestation of *S. exigua* Hubner was recorded on *A. esculentus* in Anand, Gujarat during 2015. Infestation of this pest was observed during 2nd week of April in summer, while in *kharif* it was noticed in 3rd to 4th week of July. Heavy infestation was observed on early stage of okra.

3.1 Nature of damage
Larvae feed on foliage. Grown up larvae settle on top side of newly emerged okra leaves and feed by making holes. Young larvae feed gregariously and skeletonise foliage. As they mature, larvae become solitary and eat by making large irregular holes in foliage.

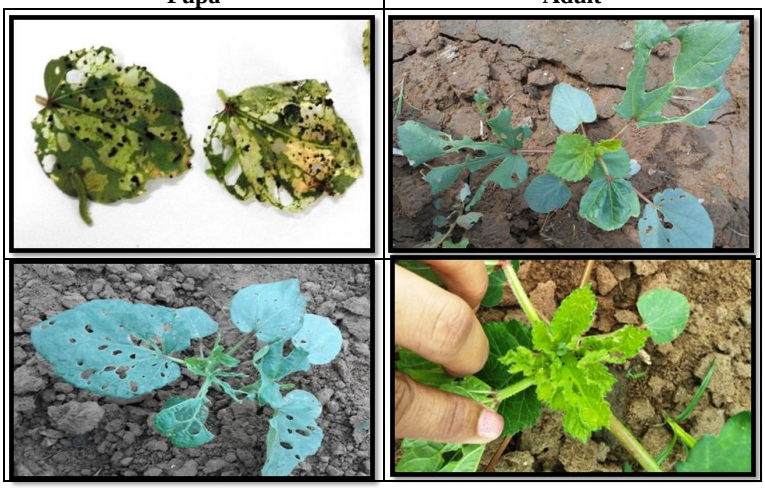
3.2 Morphological characters
Spodoptera exigua moths that lack contrasting transverse (black, brown, white) lines on the forewings. Orbicular spot is round and light or yellowish brown with a white margin, surrounded by a thin black margin. The larvae are pale green or yellow in colour during the first and second instars but acquire pale stripes during the third instar. During the fourth and fifth instar, larvae become darker dorsal side and possess a dark lateral stripe. A series of dark spots or dashes are often present dorsally and dorsolaterally. Sometimes, larvae are very dark in colour. The body is practically devoid of hairs and spines.

***S. exigua* on okra**



Larvae

Pupa **Adult**



Damage symptoms

4. Discussions
Earlier, *S. exigua* was observed in Andhra Pradesh, Assam, Bihar, Chhattisgarh, Haryana, Punjab, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal in India [2]. It has been reported to infest onion, garlic, groundnut, chilli, pearl millet, black gram, green gram, pea, dhaincha, brinjal, maize and safflower [3]. Further, it was also reported on sugar beet from Jalandhar, Punjab [8]. On the basis of collected literature, it was previously not reported from Gujarat on okra crop. Therefore, this is the first report of *S. exigua* feeding on okra crop.

5. Conclusion
This is the first report of *Spodoptera exigua* Hubner from Gujarat, India. Infestation of *S. exigua* is also recorded for the first time on okra (*A. esculentus*) during *kharif* and summer season.

6. Acknowledgment
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7. References
1. Anonymous. Horticultural statics at glance. Horticultural Statistics division, Department of Agriculture, Ministry of Agriculture and farmers' welfare, Government of India, 2017.
2. CABI, 2018. https://www.cabi.org/isc/datasheet/41476.
3. Gill AK, Arora R, Jindal V. Beet armyworm *Spodoptera exigua* (Hubner): A newly emerging pest of Egyptian clover in Punjab. Range Mgmt. & Agroforestry. 2015; 36(2):170-174.
4. Kumar DS, Tony DE, Kumar AP, Kumar KA, Rao BS and Nadenla R. A review on *Abelmoschus esculentus.*

International Research Journal of Pharmaceutical and Applied Science. 2013; 3(4): 129-132.
5. Kumar S, Dagnoko S, Haougui A, Ratnadass A, Pastenak D and Christophe K. Okra (*Abelmoschus* spp.) in West and Central Africa: Potential and progress on its improvement. African Journal of Agricultural Research. 2010; 5(25):3590-3598.
6. Pal S, Maji TB and Mondal P. Incidence of insect pest on okra *Abelmoschus esculentus* (L) Moench in red lateritic zone of West Bengal. Journal of plant protection science. 2013; 5(1):59-64.
7. Pogue MG. World Spodoptera Database (Lepidoptera: Noctuidae), 2006. [2008-5-10]. http:// www.sel.barc.usda. gov:591/ spod/ Spodoptera.html
8. Singh, DP and AS, Sethi. A statistical model to assess the effect of leaf defoliators on root and sugar yields of sugar beet. Journal of insect science. 1993; 6:72-74.
9. Zheng XL, Cong XP, Wang XP and Lei CL. A Review of Geographic Distribution, overwintering and migration in *Spodoptera exigua* Hübner (Lepidoptera: Noctuidae). Journal of the entomological research society. 2011; 13:39-48.