International Journal of Entomology Research
www.entomologyjournals.com
ISSN: 2455-4758
Received: 24-06-2024, Accepted: 25-07-2024, Published: 10-08-2024
Volume 9, Issue 8, 2024, Page No. 82-84

A survey of fruit piercing moths (Genus Eudocima) from Aurangabad district (M.S) India

Kukkadgaonkar A P[1], Lakhe A D[1], Pathre R F[2]
[1]Department of Zoology, Arts, Commerce and Science College, Beed, Maharashtra, India
[2] Department of Zoology, MSS A.C.S College, Jalna, Maharahstra, India

Abstract
Eudocima, a member of the Noctuidae family in the Lepidoptera order, is a major fruit crop pest which causes severe damage to various cash and horticultural crops. A field survey was conducted to explore the fruit piercing moths during May 2022 to April 2024 from different agricultural and horticultural fields in Aurangabad, Maharashtra. During the present study, a total of 3 species belonging to Superfamily Noctuoidea and Family Erebidae were recorded from the study area. Among these 3 species, *Eudocima materna* was most abundant. The main objective of this study was to provide a brief overview of fruit piercing moths (Eudocima) from Aurangabad district.

Keywords: Eudocima, fruit piercers, damage, cash crops, fruit crops

Introduction

Lepidoptera is the second largest order within the class Insecta. It is the most fascinating group, containing the moths and butterflies familiar to all viewers of nature, with the moth being the subject of extensive analysis by many experts. Fruit piercing moths (Eudocima spp. [=Othreis spp.], Noctuidae: Catocalinae) are major pests of ripe and ripening fruits in many subtropical and tropical nations, including Africa, Southeast Asia, and the western Pacific (Waterhouse and Norris 1987) [18]. Among all the phytophagous insects, fruit-piercing moths are probably the largest group (Scoble, 1992) [15]. These moths are known to comprise over 35,000 species and over 4,200 genera, the Noctuidae are robustly built moths. According to Zilli *et al*., (2017) [20], there are currently 48 species classified within Eudocima, and they are primarily found in tropical regions with periodic extension into temperate regions. Unlike most other moth and butterfly pests, the moth is difficult to suppress because the immature stages live only on twining vines of the Menispermaceae family in scrub and forest regions, frequently far from orchards (Fay, 1996) [7].

Fruit-piercing moths are nocturnal lepidopterans that cause damage to fruit crops during their adult stage. Stebbing identified fruit-piercing moths as severe pests in India in 1903 (Baptist, 1944) [3]. Primary fruit-piercing moths are part of the freshly reconstructed Noctuoid family Erebidae (Zahiri *et al*., 2011) [19]. Eudocima, fruit-sucking moths significantly threaten various horticultural citrus, guava, pomegranate, fig, sapota, grapes, tomato, papaya, and mango crops (Hampson, 1894) [8]. Therefore, the purpose of the current study was to identify the fruit piercing moths of genus Eudocima that are found in Aurangabad district of Maharashtra, India.

Material and methods

This study was conducted in Aurangabad district of Maharashtra, located at 19.88º N 75.32º E. Samples of adult moths were collected from different agricultural and horticultural fields in Aurangabad district from May 2022 to April 2024. Insects were collected by hand picking, sweeping net and light trap method. These moths were killed by using ethyl acetate. The collected specimens were dried in order to preserve, pinned and then set into wooden boxes. Each specimen was labelled with the information about host plants, locality and date. The collected specimens of each species were carefully observed for all details under stereoscopic microscope. The collected specimens were identified up to species level with the help of available standard literature and keys such as Hargreaves (1936) [9], Bhumannvar and Viraktamath (2001), Mohite *et al*., (2004), Lees and Zilli (2019) [10].

Fig 1: Material and method

Result and Discussion

During the present study, a total of 3 species belonging to superfamily Noctuoidea, Family Erebidae were recorded from the study area. Among these 3 species, *Eudocima materna* was most abundant while *Eudocima homaena* was least abundant. (*E. materna* > *E. phalonia* > *E. homaena*).

Table 1: Taxonomic Composition of Fruit Piercing Moths Collected from Aurangabad

Phylum	Class	Order	Superfamily	Family	Genus	Species
Arthropoda	Insecta	Lepidoptera	Noctuoidea	Erebidae	*Eudocima* *Eudocima* *Eudocima*	*materna* *phalonia* *homaena*

Eudocima maternal *Eudocima phalonia* *Eudocima homaena*

Fig 2: Fruit piercing month (genus Eudocima) collected from Aurangabad

Many researchers have investigated the diversity of fruit-piercing moths of the genus Othreis (Eudocima) in the form of faunal studies of moths and pest fruit-piercing moths, nocturnal fauna in various vegetation patterns, forests, agricultural fields, and fruit crops, among other things. Ayyar (1944) [2] described Othreis species of fruit-piercing moths from South India. Baptist (1944) [3] noted that the genus Othreis includes six species from Sri Lanka *viz*., *O. fullonia*, *O. ancilla*, *O. salaminia*, *O. materna*, *O. hypermnestra*, and *O. aurantia*. The most problematic fruit piercing moths in Madhya Pradesh, according to Bindra (1969) [5], are *O. fullonia*, *O. materna*, and *O. ancilla*. Atachi *et al*., (1989) discovered seven species of fruit piercing moths on citrus that had previously been unknown in Benin. Mote *et al*., (1991) [13] identified pest-damaging pomegranates in Sangola, whereas in Rahuri, *O. materna* was the main species from Maharashtra. Bhumannavar and Viraktamath (2001) [4] identified the noctuid moth species that feed on guava fruits in Dharwad and pomegranate fruits in Raichur and Bijapur at night. Channi *et al*., (2017) [6] identified a single species of Lepidopteran caterpillar, *E. phalonia*, at Karnataka University, Dharwad. Mathew *et al*., (2018) [11] described two fruit-piercing moths, *E. homaena* and *E. hypermnestra*, from the Vagamon hills in Kerala. Tara and Bala (2018) [17] investigated a single species of *O. fullunica* in Jammu district. Shendge and Chavan (2019) [16] carried out a review on the diversity, seasonal abundance, biology and management practices against fruit piercing moths of genus Othreis and concluded that there are about 12 species belonging to genus Othreis family Noctuidae order Lepidoptera occurring throughout India, which are severe pests of various crops. Pathre and Jadhav (2020) [14] collected the single species of Eudocima from Jalna district Maharashtra. All these works reveal the diversity and abundance of Othreis (Eudocima) fruit piercing moths in all over the world.

Conclusion

The present investigation has attempted to provide an overview of fruit-piercing moths of the Eudocima genus from the Aurangabad district. The purpose of this study was to investigate and document the fruit-piercing moths of the Eudocima genus that occur in the study area. There is still much to learn about the Aurangabad district. Maharashtra features a range of altitudinal zoogeographic settings. As a result, current data do not fully represent the state's moth variety. More surveys are needed to explore the undiscovered areas of the state's moth diversity.

References

1. Atachi P, Desmidts M, Durnex C. Fruit-piercing moths (Lepidoptera: Noctuidae) as citrus pests in Benin: a description of their damage and morphology, Plant Protection Bulletin,1969:37:111-120.
2. Ayyar TR. Notes on some fruit sucking moths of the Deccan. Indian Journal of Entomology,1944:5:29-33.

3. Baptist BA. The fruit-piercing moth (*Othreis fullonica* L.) with special reference to its economic importance. Indian Journal of Entomology,1944:6:1-13.
4. Bhumannavar BS, Viraktamath CA. Larval host specificity, adult feeding and oviposition preference of the fruit piercing moth, *Othreis homaena* Hubner (Lepidoptera: Noctuidae) on different Menispermaceae host plants. J. ENT. Res,2001:25(3):165-181.
5. Bindra OS. Controlling citrus pests. India Hori. J,1969:13:28–31.
6. Channi S, Kalliganur S, Jakabal S, Revadi S, Veeranagoudar DK, Biradar PM. A preliminary survey on lepidopteran caterpillar diversity in Karnataka University, Dharwad. Journal of Entomology and Zoology Studies,2017:5(4):1148-1153.
7. Fay HC. Evolutionary and taxonomic relationships between fruit-piercing moths and the Menispermaceae. Australian Systematic Botany,1996:9(2):227-233.
8. Hampson GF. The Fauna of British India Including Ceylon and Burma, Moths,1894:11:558-563.
9. Hargreaves E. Fruit-piercing Lepidoptera in Sierra Leone. Bulletin of Entomological Research,1936:27:589-605
10. Lees D, Zilli A. Moths: Their biology, diversity and evolution. Natural History Museum, London, 2019.
11. Mathew P, Anand S, Sivasankaran K, Ignacimuthu S. The moths (Lepidoptera: Heterocera) of Vagamon hills (Western Ghats), Idukki district, Kerala, India. International Journal of Entomology Research,2018:3(2):114-120.
12. Mohite AS, Umarkar SP, Shinde JS. Studies on damage in the orange crop and population density of fruit sucking moths in the Vidarbha region of Maharashtra. Ecol. Env & Cons,2006:12(4):691–693.
13. Mote UN, Tambe AB, Patil CS. Observation on incidence and extent of damage of fruit sucking moths on pomegranate fruits. Journal of Maharashtra Agriculture University,1991:16(3):438-439.
14. Pathre RF, Jadhav SD. Some fruit piercing moths (Lepidoptera: Heterocera) from Jalna district of Maharashtra, India. Journal of Entomological Research,2020:44(1):131-133.
15. Scoble MJ. The Lepidoptera. Form, function and diversity. Oxford University Press, 1992.
16. Shendge ES, Chavan RJ. Review on fruit piercing moths of the genus Othreis. Indian Journal of Entomology,2019:81(4):712-716.
17. Tara JS, Bala A. Erebid moths reported from Jammu district (Jammu and Kashmir State), India. International Journal Advanced Research,2018:6(2):1418-1424.
18. Waterhouse DF, KR Norris. Biological Control: Pacific Prospects. Inkata Press, Melbourne, 1987, 454.
19. Zahiri R, Kitching IJ, Lafontaine JD, *et al*. A new molecular phylogeny offers hope for a stable family level classification of the Noctuoidea (Lepidoptera). Zool. Scr,2011:40:158–173.
20. Zilli A, Brou VA, Klem C, amp; Zaspel J. The Eudocima Billberg, 1820 of the Australian Region (Lepidoptera: Erebidae: Calpinae). Biodiversity, Biogeography and Nature Conservation in Wallacea and New Guinea; Telnov, D., Barclay, MVL, Pauwels, OSG, Eds, 2017, 631-655.