International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Occurence of Garden Pebble Moth *Evergestis forcifalis* in Mid Hills of Garhwal, Uttarakhand

Priyanka Bhatt[1], Rohit Kumar[2], Manish Kumar Gupta[3], Deepti Joshi[4]

[1]Faculty of Agriculture and Agroforestry, Krishnapur, Kumaun University, Nainital, Uttarakhand, India
[2]Territory Business Manager, Bayer Crop Science, Panipat, Haryana, India
[3]Department of Entomology, Veer Chandra Singh Garhwali Uttarakhand University of Horticulture and Forestry (VCSGUUHF), Bharsar Pauri Garhwal Uttarakhand, India.
[4]Department of Entomology, G.B. Pant University of Agriculture & Technology, Pantnagar (U.S. Nagar), Uttarakhand, India.

Abstract
Garden pebble moth Evergestis forficalis (L.) (Lepidoptera, Crambidae), was observed on cruciferous plants especially radish, rye and cabbage during August 2019 at Vegetable Research and Demonstration Block of Veer Chandra Singh Garhwali Uttarakhand University of Horticulture and Forestry, Bharsar Pauri Garhwal Uttarakhand. The pest was active in the field and the larvae severely infested radish plants. The adult emergence was delayed due to harsh climatic conditions of Bharsar. The adult was seen in December.

Keywords: Radish, Cruciferous , Insects, Garden Pebble Moth, *Evergestis forcifalis*

Evergestis forficalis (L.) (Lepidoptera, Crambidae), commonly known as the garden pebble moth has been recorded from Europe, the Palearctic and North America and some parts of Asia. The moth has been reported as a pest on several cruciferous vegetables in India (Gupta, 1994; Bhat et al., 2011; Bhat and Ahanger, 2018; Chandra et al., 2019; Anonymous, 2023). The garden pebble moth *E. forcifalis* was observed infesting cruciferous plants at Bharsar Pauri Garhwal (29° 20’ N-29° 75’ N latitude and 78° 10’ E -78° 80’ E longitude). Bharsar is a small hilly region situated at about 60 km from the district head quarter (Pauri Garhwal) in the East-South direction on the road side area of Pauri-Thalisain-Ram Nagar National High way 121/41. Bharsar is bounded by the temperate evergreen forest towards North-East (Budha Bharsar), North-West (Chauri Khal), East-South direction occupies terracing crop fields and village namely Dhulet, Sakniyana, Buransi, Nauntha, Sainji etc (Bisht, 2017). The pest was spotted in the fields of Vegetable Research and Demonstration Block of VCSG UUHF on cabbage, radish and rye plants at temperature 21°C and RH 66% during late August, 2019. The pest was found to damage cabbage, radish and rye leaves in the initial stages at University Campus. This pest was observed in Jammu and Kashmir and studies on its biology has been done by Bhat et al. (2011). They reported that smaller instars feed gregariously on Brassicaceae while the later instars dispersed and fed in isolation. Punching holes or causing more extensive defoliation of young and mature leaves was observed as symptoms by the authors. The caterpillars (fig 4) were observed producing holes which later coalesced and became irregular and the leaves were completely skeletonized during August- October. The larvae were found to be feeding singly. The larvae could not be immediately related to any of the known noctuid species, and therefore were

brought to the laboratory for detailed study of their biology and behaviour. However, we couldn't not locate the eggs of the moth in the field. Second instar larvae (fig.1, 2 &3) are green in colour with black spots. The fully grown caterpillars (fig 5 & 6) were grey to purple with white stripes across the body, two dots on each segment of the abdomen, and yellow lines that extended the length of the body on both sides. The insect overwintered in larval stage. The life cycle of the pest could not be studied because with lowering in temperature some larvae underwent diapause. Pupa (fig.7) converted to adult (fig.8) approximately after 2.5 months in December due to extreme low weather conditions at Bharsar. The adult is brown in colour with spotted markings. Forewings have transverse markings. Hindwings are light in colour with a dark margin.

There is very little documentation available on this insect in Indian subcontinent. Cruciferous crops are attacked by different types of sucking insects and caterpilllars. Observing this pest on the Brasicaceae agroecosystem in hills of Uttarakhand may trigger further studies on the the pest status, biology, host range and management of *Evergestis forcifalis*.

References

1. Anonymous, *Evergestis forficalis (Linnaeus, 1758) Evergestis forficalis (L.) (Lepidoptera, Crambidae), a pest of cruciferous crops* 308 – Garden Pebble Moth. In: Butterflies of India, Vol. 3. (Eds. Sondhi S. Sondhi Y. Singh PR. Roy P and Kunte K.), Indian Foundation for Butterflies.2023, pp 50. URL: https://www.mothsofindia.org/ evergestis-forficalis, .
2. Bisht, A.S.,.*Future prospective of wild edible fruits from Bharsar & adjoining area in Pauri Garhwal, Uttarakhand , India*. Brazilian Journal of Biological Sciences, 2017, Vol 4(7) ,pp81-88.
3. Bhat D.M and Ahanger FA, *A systematic checklist and species richness of insect pests associated with vegetable crops in Jammu & Kashmir State (India).* Journal of Entomology and Zoology Studies, 2018, 6 (2): 328 – 338.
4. Bhat D.M., Bhagat R.C. and Qureshi A, *A survey of Insect pests damaging vegetable crops in Kashmir Valley (India), with some new Records.* Journal of Entomological Research , 2011, 35(1): 85 – 91.
5. Chandra K., Kumar V., Singh N., Raha A. and Sanyal A.K, *Assemblages of Lepidoptera in Indian Himalaya through long term monitoring plots.* Zoological Survey of India, Kolkata. 2019 ,457 pp. Pl. 49.8.
6. Deen Mohd Bhatt, *Evergestis forcifalis (L) (Lepidoptera , Crambidae), a pest of cruciferous crops in the U.T. of Jammu & Kashmir , India*. Entomon 2023, 48(2): 305-308.
7. Gupta P.R., *Biology of Evergestis forficalis (L.) (Pyralidae), a pest of crucifers in Himachal Pradesh.* Journal of Insect Science, 1994, 2 (5): 211– 212.

Fig.1. young instar larvae

Fig 2 : Early instar feeding on Cabbage leaf

Fig.3: Infestation of larvae on radish leaves

Fig 4: Late Instar larva

Fig 5: Late Instar larva

Fig.6: Pupae of *E.forcifalis*

Fig 7: Adult of *E.forcifalis*