



RESEARCH NOTE

First report of occurrence of scale, *Perisopneumon ferox* Newstead (Hemiptera: Coccoomorpha: Monophlebidae) on dragon fruit from Gujarat, India

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ABSTRACT: A field study was conducted to document the insect pests of dragon fruit in South Gujarat during March to June, 2025. The sporadic infestation of scale, *Perisopneumon ferox* Newstead (Hemiptera: Coccoomorpha: Monophlebidae) was observed on both White flesh dragon fruit (*Hylocereus undatus*) and Red dragon fruit (*Hylocereus polyrizus*). The female adults (number ranging from 1 to 5) infest dragon fruit plant mainly at internode, which is a segment between two cladodes. This is the first time record of scale insect on dragon fruit. Since an economic loss has not yet been observed from this new pest incidence, a comprehensive management strategy should focus on research, monitoring, and preparedness.

Keywords: Dragon fruit, Scale, Gujarat, *Perisopneumon ferox*

Dragon fruit, recently renamed as “Kamalam” fruit, is an exotic crop that gained popularity in India during the 1990s, particularly in arid and low rainfall regions (Nangare *et al.*, 2020). Introduced in the late '90s, its cultivation area has been steadily expanding across the country (Karunakaran *et al.*, 2019). At present, it is grown in almost every state, with major cultivation concentrated in Karnataka, Kerala, Tamil Nadu, Maharashtra, Gujarat, Chhattisgarh, Odisha, West Bengal, Andhra Pradesh, Andaman & Nicobar Islands, Mizoram and Nagaland. In India, Kamalam fruit cultivation is rapidly increasing, and farmers have widely adopted this crop. Meanwhile, India's urban population is becoming increasingly health conscious and willing to explore natural remedies for rising lifestyle-related health concerns such as diabetes, high cholesterol, and stress-associated disorders (Nangare *et al.*, 2020). Consequently, dragon fruit holds strong potential owing to its richness in Vitamin C, phosphorus, and calcium, which further attracts farmers to cultivate it. However, emerging constraints such as sunburn, poor fruit set and quality, along with pests and diseases, are also being reported.

In India, pests including mealybugs, aphids, and termites have been reported to damage dragon fruit (Nangare *et al.*, 2020). Scale insects such as *Aonidiella aurantii* and *Saissetia coffeae* are known to infest dragon

fruit by attaching to stems and leaves (Kondo *et al.*, 2009). In West Bengal, *Coccus viridis* (Green) has been recorded infesting pink- and white-fleshed fruits, often in close association with red ants and mealybugs (Kar *et al.*, 2023). More recently, Venugopal *et al.* (2025) reported infestation of *Helicoverpa armigera* (Hubner) on vegetative tissues of dragon fruit (*Selenicereus costaricensis*) in Telangana, India. Carrillo *et al.* (2021) documented the occurrence of the soft scale insect, *Philephedra tuberculosa* Nakahara and Gill, on fruits and the hard scale, *Diaspis echinocacti* (Bouche), on stems and fruits in South Florida. The scale *D. echinocacti* has also been found infesting pitaya stems (Carrillo *et al.*, 2021). However, reports on insect pests of dragon fruit from Gujarat are limited since this crop has been introduced only recently. The present paper reports the occurrence of a scale insect on dragon fruit in Gujarat for the first time.

The Agriculture Experimental Station (AES), Navsari Agricultural University (NAU), Paria, Dist. Valsad (Gujarat) is located at 20°26'58.427"N latitude and 72°57'5.723"E longitude in South Gujarat (Fig. 1). During pest and disease surveys of mango under the All India Co-ordinated Research Project on Fruits (AICRP-F) in Gujarat (2023-24), a scale insect infestation was noticed on dragon fruit plants, both

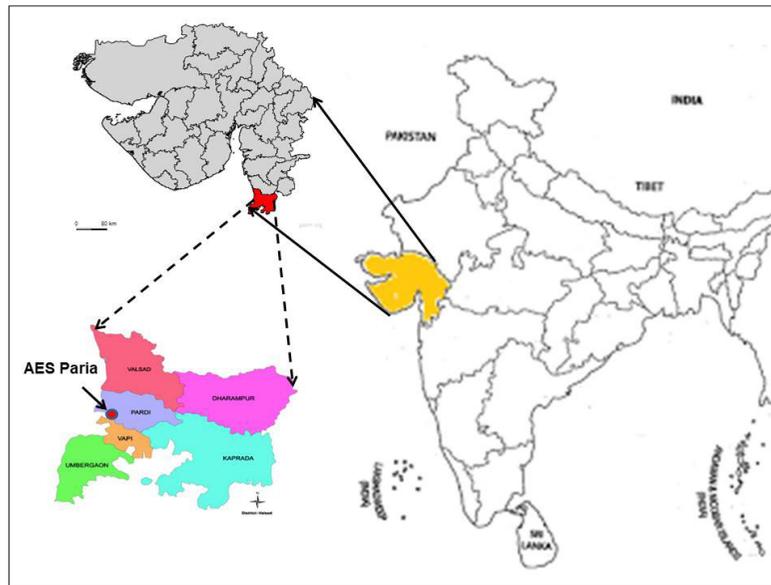


Fig. 1. Location of the study

white (*Hylocereus undatus*) and red flush (*Hylocereus polyrizus*). To identify the insect species, live scale insect samples along with plant material were collected from the field and placed in a polypropylene bag. The samples were immediately transported to the laboratory, AES, NAU, Paria. The specimens were observed under a stereo microscope fitted with a ScopeTek DCM130E microscope-camera and photographs were captured. The insect was identified as *Perisopneumon ferox* Newstead by Dr. Sunil Joshi, Principal Scientist, National Bureau of Agricultural Insect Resources, Bengaluru, Karnataka, India.

Perisopneumon ferox is a large, wingless scale insect with a red-brown, elliptical, soft body covered with a fine white waxy, cottony powder. In the present study, it was mainly observed infesting the dragon fruit plant at the internode, the segment between two cladodes (Fig. 2-a,b,c). Cladodes are triangular, fleshy, ribbed stem segments or branches of the plant. Occasionally, adults were found singly at the base of the cladode (Fig. 2-d). Cladodes are long, green, flattened stems that function like leaves by performing photosynthesis and bearing flowers and fruits. Female adults (ranging from 1 to 5) were found attached in the internode region of the cladodes. This is the first record of this scale insect on dragon fruit, and no economic loss was observed during the study. Adult females were elliptical, measuring about 8.5 to 11.0 mm in length and 4.0 to 6.0 mm in width (Fig. 2-f, g & h). The insect is bilaterally symmetrical, red-brown in colour (Fig. 2-e), wingless, and bears well-developed black legs (Fig. 2-a, b & c). The antennae

and legs are black, and the body is oval, soft, cottony, and coated with a light white waxy covering. Since no economic loss has been recorded so far from this new pest incidence, management efforts should focus on research, monitoring, and preparedness to prevent potential future outbreaks.

The giant scale insect, *P. ferox*, is a destructive polyphagous monophlebid pest capable of causing serious yield losses, commonly on woody plants, and remains difficult to manage (Chowdhury and Rahman, 2025). The insect inserts its stylets into plant tissues and feeds on phloem sap, leading to substantial loss of leaves, flowers, and fruits, along with reduced fruit weight. Severe infestations may even result in plant death (Pathan *et al.*, 2018). This species is distributed across the Indian subcontinent (Varshney, 1992) and Australia (Ben-Dov *et al.*, 2006). Its secretions are used in the production of valuable products such as lacquer, red dye, and wax. In addition, the sugary honeydew excreted by this insect serves as an important food source for other insects, including bees and wasps (Kondo and Gullan, 2022). Sartiami *et al.* (2019) reported four mealybug species, *Ferrisia virgata* Cockerell, *Planococcus minor* Maskell, *Phenacoccus solenopsis* Tinsley and *Pseudococcus jackbeardsleyi* Gimpel and Miller, on dragon fruit in Indonesia. Carrillo *et al.* (2021) also documented, for the first time in southern Florida, the presence of the soft scale insect *Philephedra tuberculosa* Nakahara and Gill (Hemiptera: Coccidae) on dragon fruit, along with the hard scale *Diaspis echinocacti* (Bouche) (Hemiptera: Diaspididae) infesting dragon fruit stems.

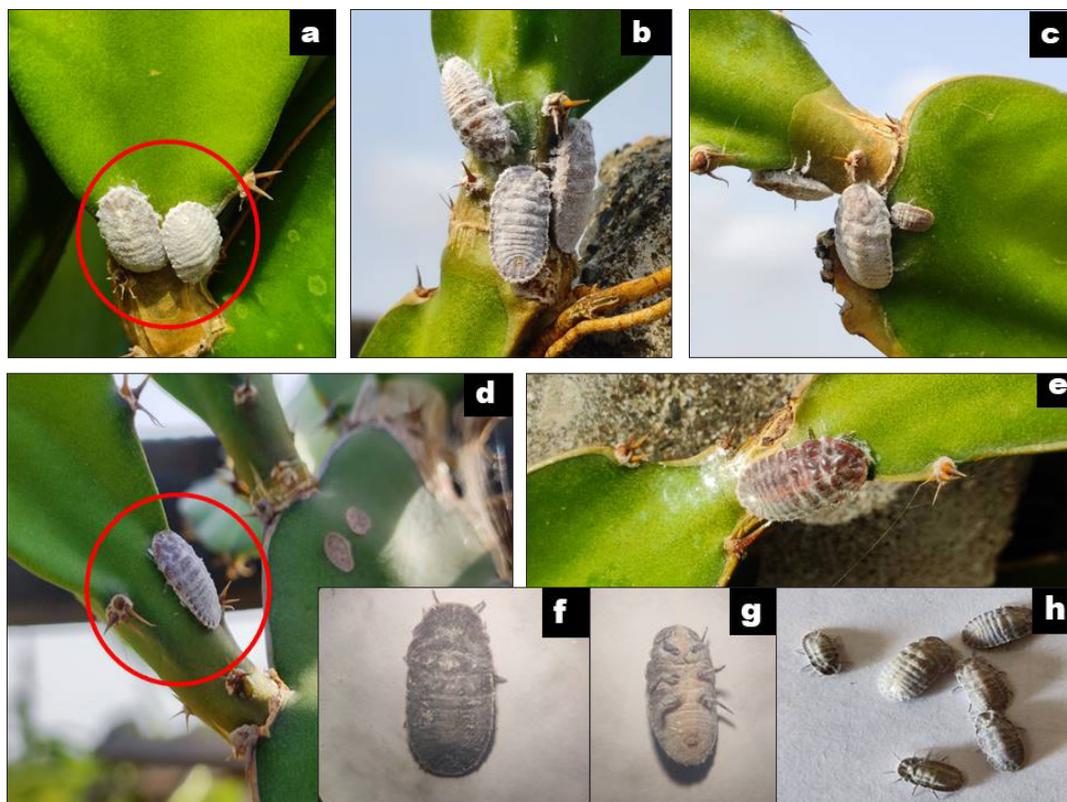


Fig. 2. Female adults (body covered with soft white wax) at internode region (segment between two cladodes) (a, b, c); Adult found singly on base of cladode (d); Female adult with reddish brown body without white wax (e); Dorsal microscopic view (f); Ventral microscopic view (g); female adults (h)

Pathan *et al.* (2018) reported infestation of *P. ferox* on aonla, *Emblia officinalis* Gaertn. at Jagudan, Gujarat, where damage was mainly caused due to sap depletion, leading to shoot drying and defoliation. The scales were observed on twigs, and heavy feeding resulted in loss of cell sap, with the insects aggregating mainly on newly emerged twigs and woody portions, particularly where pruning had been carried out. Under severe incidence, 28-30 scales were recorded on a 25 cm aonla twig. Scale insects generally infest stems, branches, and leaves of their host plants. Similarly, Shukla and Tandon (1984) first reported the incidence of *P. ferox* on custard apple in Bengaluru, Karnataka, where both nymphs and adults infested tender shoots, leaves, and fruits. Likewise, Srivastava and Verghese (1985) recorded heavy infestation of the pseudococcid *P. ferox* on mango in Uttar Pradesh and reported two predators, the coccinellid *Rodolia fumida* Mulsant and the erythraeid *Leptus* sp., preying on *P. ferox*. Das and Das (2022) described a new archaeococcoid species, *P. kalyaniense*, from specimens collected on twigs of *Glycosmis pentaphylla* (Retz.), a medicinal plant from Kalyani, West Bengal, India. This new species closely resembles *P. ferox* but can be distinguished based on differences in ventral multilocular pores and anal tube characteristics.

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AUTHORS CONTRIBUTION

SMC: conceptualization, designing and implementation of the experiments and MS preparation, and formal analysis and MS finalization.

CONFLICT OF INTEREST

Not Applicable

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