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RESEARCH NOTE

First report of *Coccus viridis* (Green) as a pest of dragon fruit in West Bengal

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ABSTRACT: A field study was conducted to document the insect pests of dragon fruit at Bidhan Chandra Krishi Viswavidyalaya, Mandouri, West Bengal, India during 2022 and 2023. The infestation of *Coccus viridis* was observed in pink and white-fleshed fruits during June to October. The population of nymphs and adults varied from 5 to 72 /fruit during the study period. The pest was found in close association with red ants and mealy bugs. However, the infestation was found confined to fruits only. Rusty specks formed on fruits and severely infested fruits remained underdeveloped and small. This is the first report of *C. viridis* infestation on dragon fruit from West Bengal, India.

Keywords: *Coccus viridis*, dragon fruit, mealy bug, red ant

Dragon fruit (*Hylocerus undatus*) has been introduced as a new crop in India, especially in dry and low rainfed areas (Nangare *et al*., 2020). The crop is now widely cultivated in India, which is currently one of the rising properties of commercially cultivated fruit. The urban consumers of India are now nutritionally aware and willing to try natural products for their ever increasing ailments like diabetes, cholesterol, and other stress related diseases (Nangare *et al*., 2020). Hence, dragon fruit has such potential because of its Vitamin C, phosphorus and calcium richness, which attracts the farming community to cultivate the crop. On the other hand, there is also a need to shift traditional orchards into diversified orchard with new and exotic fruits to fulfill the fruit basket of our nation. Hence, dragon fruit is a crop with amazing health benefits that needs to draw much attention from growers in India. Like other fruit crops, dragon fruit is also infested by insect pests and diseases. However, there is very limited study on diversity of insect pests infesting dragon fruit in India.With this background, a study was done to investigate the diversity of insect pest of dragon fruit in West Bengal during 2022 and 2023.

A fixed plot survey was conducted at the fruit research station of ICAR-All India Coordinated Research Project on Fruits, Mandouri, Bidhan Chandra Krishi Viswavidyalaya during 2022 and 2023to record the diversity and incidence of insect pests of dragon fruit. The location of the experimental plot was 22.48° N and 88.42° E, altitude 9.75 m AMSL (Above Mean Sea Level).During the study period, a scale insect was found to attack the fruits of dragon fruit. Hence, to identify insect species, live scale insect samples along with fruit were collected from the experimental field and put in polypropylene bag of 50 micron thicknessand 39cm x 9cm size. The collected samples were then immediately brought to the laboratory of Agricultural Entomology, BCKV, Mohanpur, for identification and subsequently identified as *Coccus viridis* (Green) (Coccidae: Hemiptera)by the expert. During the survey, the incidence of scale insect on dragon fruit, time of occurrence of the pest, pattern of damage *etc*. were recorded.

Coccus viridis is polyphagous and a major biotic constrain of a wide range of important crop plants like *arabica* and *robusta* coffee, citrus, tea, mango, cassava and guava (Le Pelley, 1968). In the present study, it has been found to attack dragon fruit. The attack was noticed in the developing to the ripening stage of the fruit. Interestingly, no pest population was observed on the stem of the plant. There was a strong association of red ant and *C. viridis* throughout the study period. In addition to scale infestation, mealy bug infestation was also noticed in the experimental field. *Coccus viridis* used to occur in tropical regions of the world and thought to be originated from Brazil. Presently it has been distributed in countries like Asia, Africa, America, Europe, Oceania and Australia. In India the pest has been reported from Assam, Bihar, Karnataka, Tamil Nadu and Kerala (EPPO global database).

The adult scale insect was dome shaped, pale with blackish internal markings that were found visible through the chitinous body wall. The adults and nymphs

were lack of antennae, wings and legs (Fig. 3 and 4). The crawlers were without scale found at the ventral side of female (Fig. 1). During this study, crawlers were observed moving freely on the host surface. Later, the crawlers moulted into nymphs by developing scales over their body, where they concealed themselves and at this point they fixed themselves at a particular spot of the spike (Fig. 2 &5), later continued to feed and multiply on developing fruits. They congregate in line through the inner and outer margin of the dragon fruit spike (Fig. 6) with a population of 5 to 29 insects per fruit spike depending on the length of the spike. The incidence of insects were recorded during June and remain active in the field till September-October or until the fruits remained in the field. However, maximum pest incidence was observed during June-July and another peak during first week of September. A positive relationship observed between a number of fruits and pest incidence. Red ants and mealy bugs were associated with the mature unripe fruit to ripe fruit. The red ant was found feeding on honeydew and acting as transmitter of the pests (Fig. 7 & 8). Due to continuous sucking of the peel surface, rusty specks developed on spike and peel of the infested fruit (Fig. 9), fruit, reduced its size and remained stunted with

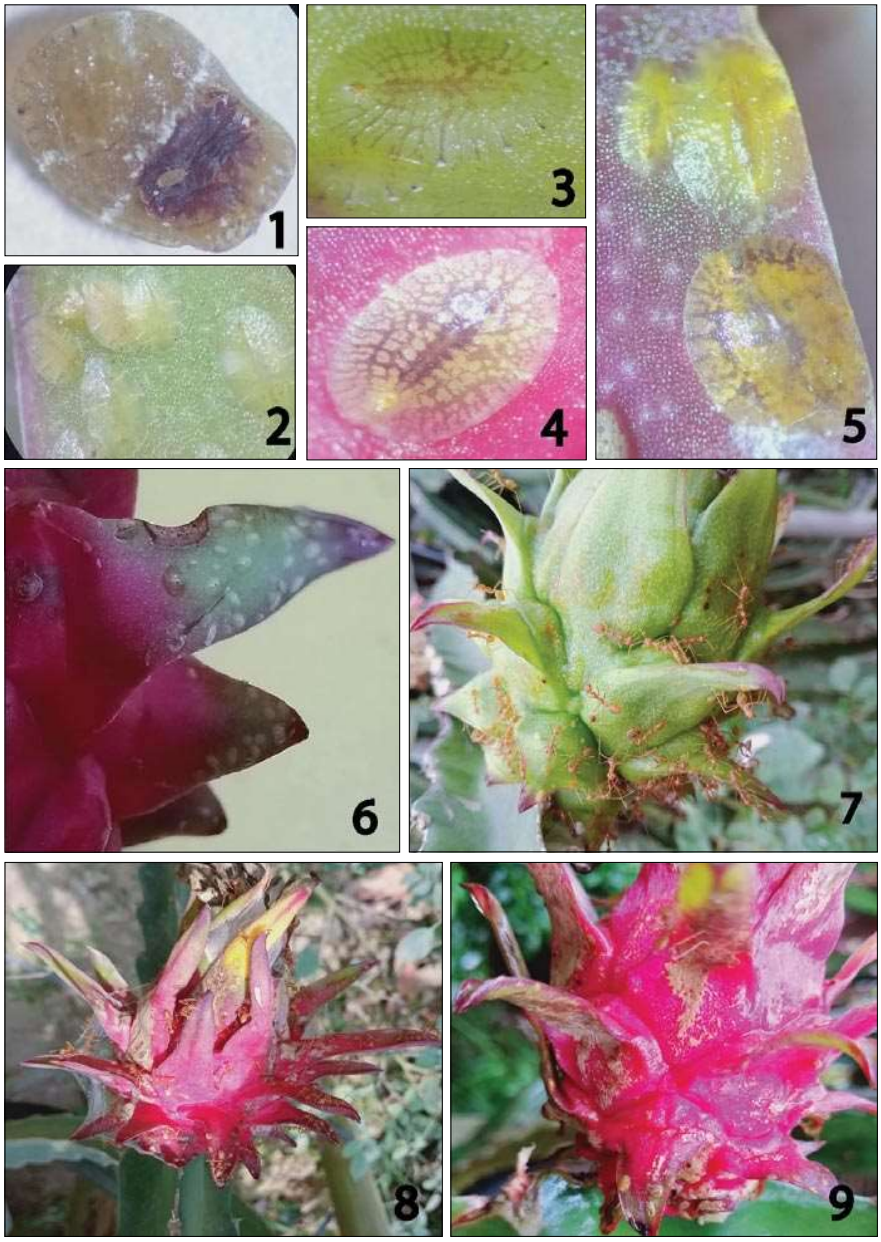

Fig. 1-9. *Coccus viridis* (Green) on dragon fruit; 1– Ventral part of female with crawler; 2 & 5 – Colony of scale; 3 – Nymph; 4 – Adult; 6 – Colony of scale on fruit spike; 7 – Scales in association with red ant on developing fruit; 8 & 9 – Damaged fruit

an unpleasant appearance. Ultimately, the infested fruits lost market quality as well as price. However, no fruit dropping was observed during the course of study.

Carrillo *et al*. (2021) reported the presence of soft scale insect, *Philephedra tuberculosa* Nakahara and Gill (Hemiptera: Coccidae) for the first time on dragon fruit in south Florida. They also reported a species of hard scale, *Diaspis echinocacti* (Bouche) (Hemiptera: Diaspididae) infesting the stems of pitaya or dragon fruit plants. However, there is no record of incidence of *C. viridis* on dragon fruit though the species is polyphagous. In India pests like mealy bugs, aphids and termites have been found damaging the dragon fruit, as reported by Nangare *et al*. (2020) and in the present study, the crop has been recorded as a new host of *Coccus viridis*.

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