



## OCCURRENCE OF FRUIT CHAFER BEETLE *PROTAEITIA ALBOGUTTATA* (VIGORS) ON FIG

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### ABSTRACT

Severe infestation of a fruit chafer beetle, identified as *Protaeitia alboguttata* (Vigors) (Coleoptera: Scarabeidae: Cetoniinae) was recorded on fig (*Ficus carica* L.) at the ICAR- Indian Institute of Horticultural Research, Bengaluru. The adults of beetle fed on matured fruits of fig (cv. Poona) gregariously (2-12/ fruit). Out of 68 plants which were in fruiting stage, 31 (accounting to 45.58%) were found attacked. The number of beetles feeding on a single fruit ranged from 2 to 12 (mean 4.56) and 75.8% of ripened fruits were affected. Findings highlight the expanding host range of *P. alboguttata* as there are no previous records of it infesting fig fruits.

**Key words:** Fig, *Ficus carica*, chafer beetle, fruit damage, pest record, *Protaeitia alboguttata*, cetoniid, fruit beetle, Poona fig, host record

Pest complex of crops is dynamic in nature and is influenced to a great extent by the changing climate, cropping patterns and pressure of pest management strategies implemented. It is evident from the growing list of new pest records, pest outbreaks and expanding host range of existing pest species. In the recent past, there are many reports on the insect pests being recorded on crops hitherto unknown to be their hosts. For instance, tea mosquito bug *Helopeltis antonii* Signoret, a major pest of tea, cashew and guava is reported to have expanded its host range and caused significant damage to other horticultural crops like *Annona* (Reddy, 2007) and pomegranate (Jayanthi et al., 2016). Regular monitoring and surveillance are thus essential to document new pests or change in the existing pest status, so as to keep them under check before they turn into a menace. Here such an incidence of fig (*Ficus carica* L.) as a new host record for a cetoniid beetle is reported. Fig, popular as 'Anjeer' in India and belonging to the family Moraceae, is considered a minor fruit crop with high commercial potential. It is grown both in arid and subtropical regions and in India, its cultivation is confined to specific locations like in Maharashtra (Pune district), Karnataka (Bengaluru, Mysore and Bellary districts), Andhra Pradesh (Ananthapur district) and some parts of Uttar Pradesh and Rajasthan (Meghwal and Kumar, 2009). Fig fruits, rich in vitamins and minerals like calcium are consumed either fresh or dried or canned. Fig trees are of moderate size and deciduous

nature and are known to be attacked by several insect pests of which stem borer, defoliators, scales and fruit fly are of major concern (Butani, 1979). This paper reports the severe infestation of a chafer beetle on fig fruits which hitherto was not reported on fig.

### MATERIALS AND METHODS

The present study was conducted as part of an ongoing activity of monitoring insect pests of fruit crops at ICAR-Indian Institute of Horticultural Research (IIHR), Bengaluru (12.97°N, 77.59° E). Observations were recorded at regular intervals on the pest status of fruit crops including fig. During April-May 2020, it was observed that a chafer beetle was causing severe damage to fig fruits in a 12 year old fig orchard (cv. Poona). There were 80 plants of which 68 were in fruiting stage. Considering the severity of beetle damage to fig fruits, systematic observations were recorded till the fruiting period was completed. The adult beetles have black elytra sprinkled with characteristic white patterns of different sizes (Fig. 1). These were collected and sent to ICAR-National Bureau of Agricultural Insect Resources (ICAR-NBAIR), Bengaluru for identification. Observations were recorded on the number of beetles feeding/ fruit, number of immature and matured fruits affected/ tree and finally calculated the % damage. Laboratory studies were also conducted to establish the fruit stage preference. Field collected adult beetles were released into a plastic tray filled with

30 fig fruits of which 10 were immature and remaining were matured ones, and damage was observed.

### RESULTS AND DISCUSSION

The beetle species was identified as *Protaeitia alboguttata* (Vigors) (Coleoptera: Scarabeidae: Cetoniinae) by the coleopteran taxonomist at ICAR-NBAIR, Bengaluru. Out of 68 plants which were in fruiting stage, 31 (accounting to 45.58%) were found attacked. The beetles were congregating and feeding on matured and ripened fruits. The number of beetles feeding on a single fruit ranged from 2 to 12 ( $n = 50$ ;  $4.56 \pm 1.25$ ). Out of 444 total fruits observed, 145 were infested reflecting 32.66% damage. However, when fruits were sorted based on maturity stage, it was found that matured and ripened fruits were highly vulnerable and preferred; 75.8% ( $n=185$ ) of matured fruits were affected compared to a mere 1.93% ( $n=259$ )

of immature fruits. Preference of beetle to matured fruits (colour turned from green to purple) was also established in the laboratory. Beetles were released into a plastic tray having a mixture of matured and immature fig fruits. It was observed that beetles did not prefer to feed on immature fruits and concentrated only on matured fruits (Fig. 1c,d). From the results, it is evident that there is a strong attraction of beetles to matured fruits and specific volatiles emitted by matured fruits might be playing crucial role in beetles congregating on these fruits. On closer observation, it was found that the primary infestation was initiated by a single beetle and later with the advent of feeding, eventually more beetles congregate (Fig. 1). The affected fruits were completely damaged. Almost 70% of the fruit was devoured ultimately rotting and attracting saprophytic *Drosophila*.

Butani (1979) does not include *P. alboguttata* as



a. Initiation of damage by a single beetle



b. Adults of *P. alboguttata* feeding on fruit



c. Laboratory observations on fruit stage preference



d. Immature fruits - not attacked

Fig. 1. Infestation of *P. alboguttata* on fig fruits

a pest of fig. Even in later reports on pest complex of fig (Giliomee, 2011; Singh and Kaur, 2017), no references was found regarding this beetle as a pest of fig. This study is the first record of the occurrence of *P. alboguttata* on fig causing significant damage. Perusal of literature indicates that cetoniid beetles are known as flower or fruit beetles as they mainly feed on pollen and nectar and at times on fruits. There are about 4000 species of cetoniid beetles worldwide (Krikken, 1984; Krajcik, 1999). Though certain species of cetonids are considered to help in pollination, the nature and extent of damage caused by *P. alboguttata* as observed in fig, makes it a potential pest. The pestiferous nature of *P. alboguttata* was earlier reported by Jayanthi et al. (2017) on karonda (*Carissa carandas* L.), another underutilized fruit, from the same locality of the present study. This reveals that the beetle might have expanded its host range. Jayanthi et al. (2017) mentioned that besides karonda, *P. alboguttata* also attacks carambola (*Averrhoa carambola*) fruits. Veeresh et al. (1980) reported it to be a pest of brinjal while Sekhar et al. (2000) documented the beetle feeding on maize tussles. As a preliminary observation, spray of azadirachtin 1% @ 3 ml/l helps in repelling the beetles. However, harvesting fruits at correct stage and not leaving any over ripened fruits in the field will minimize the loss.

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