



The exploration of the damage potential of red pumpkin beetle *Aulocophora* sp. on *Calotropis* sp.

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Received: August 07, 2022; Revised: August 12, 2022 Accepted: August 12, 2022

The calotropis is one of the important weed species distributed throughout tropical and sub-tropical countries and it was reported as a noxious weed in Australia and Brazil (Grace, 2006). It is the common weed plant in the states of India (Rahman and Wilcock, 1991). It can grow up to 4 m in height with a strong tap root system. Which can survive well in drought and heat stress. It can be found on the sides of national highways, urban areas, wastelands bunds of canals and rivers. All the plant parts are coated with waxy substance and exude latex. The biochemical compounds of latex include calotropin, calotropogenin, calotoxin, uscharin and calactin, saponins, phenols, tannins, terpenoids and flavonoids were reported for its defence mechanism against insect pests (Mueen Ahmed et al. 2005; Rashmi et al. 2011).

More than sixty species of insects were associated with the plant's parts of calotropis including leaf feeders, stem borers, flower feeders and seed feeders from the orders Coleoptera, Lepidoptera, Hemiptera, Orthoptera and Diptera worldwide and thirty-four species were reported in India. Among them, few species have recorded potential natural enemies of calotropis in biological control (Dhilepan, 2014). The Aak weevil *Paramecops farinosus*, the Aak fruit fly *Dacus persicus* were reported as potential biocontrol agents in the Indian subcontinent (Parihar, 1984; Sudan et al. 2013).

The red pumpkin beetle belong to the family Chrysomelidae, order: coleopteran. It is one of the most important pests of many cucurbitaceous crops such as pumpkin, cucumber, ridge gourd, bottle gourd etc. and can cause severe defoliation

and yield loss can be up to in cucurbitaceous crops. Earlier reports recorded the red pumpkin beetle on calotropis as a defoliator in Madhya Pradesh and West Bengal in India (Chandra et al. 2011; Jana et al. 2012).

We aimed to study insects associated with calotropis in Dindigul district of Tamil Nadu and random visits were made to the calotropis plants present in the cultivable, non-cultivable, urban areas of the Reddiyarchatram, Ottanchatram, Nilakottai, Natham and Vedasandur blocks for one year (June 2021 to May 2022). We have collected the data on the phytophagous insects associated with the calotropis. Hundred randomly selected (twenty spots/block) spots were examined in the monthly interval to collect the information. During the data collection, the red pumpkin beetles were also found as one of the leaf feeders.

Variation in the numbers of beetles associated was observed in all the months (0-10 per plant) also the presence of red pumpkin beetles was not recorded in all the hundred spots. The heavy incidence was recorded in a single spot located in the foothills of "Pandri hill" in the Reddiyarchatram block. The aggregated population of red pumpkin beetles was observed from May to June 2022. Hundreds of beetles feed on various parts of the plants including the leaves, flowers, shoots and also on seeds and their hardcover. The plants heavily defoliated within five days of infestation. Surprisingly the seeds and their hardend cover also dried up. The heavy damage of calotropis by the pumpkin beetles in the single spot might be due to the effect of the environment on the plants or

changes in physiology of red pumpkin beetles.

This was a unique situation in the selected spots. To find out the reality behind this further research is need to be conducted to

record the difference in the bio-physical and biochemical components of Calotropis in different locations. Landscape of location, physiological and behavioural changes in the beetles.



Figure 1. Pumpkin beetles feeding on Calotropis



Figure 2.a. Feeding damage by Pumpkin beetles



Figure 2.b. Infestation on shoots



Figure 2.c. Infestation on flower



Figure 2.d. Infestation on fruit



Figure 3. Heavy defoliation after 5 days of infestation

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