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Short Communication

Incidence of cetonid beetles, *Protaetia alboguttata* (Vigors) on karonda, *Carissa carandas*

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ABSTRACT

Severe infestation of cetonid beetles, *Protaetia alboguttata* (Vigors) has been noticed on karonda at the experimental station of Indian Institute of Horticultural Research, Bengaluru during the year 2013. The mean damage on the ripe fruits was found to be 22.40±2.50% with a range of 15.00 – 30.00%. Considering the polyphagy of cetoniids, these beetles can pose direct threat to the cultivation of karonda.

Key words: Expanded host range, fruit pest, severe incidence

Karonda, *Carissa carandus* L. is an underutilized fruit plant which is gaining popularity as one of the 'future crops' to supplement nutritional needs. It is a hardy, evergreen, spiny and indigenous shrub widely grown in India and well suited for marginal lands. It naturally grows in Nepal, Afghanisthan, Myanmar, Thailand, Peninsular Malaysia and Sri Lanka low land rain forests. In India also it is found wild in the Western Ghats, Konkan area of Maharashtra, Bihar, and West Bengal and throughout the semi-arid regions of South India. Nevertheless, regular commercial plantations of Karonda are also very common in Uttar Pradesh, Rajasthan, Madhya Pradesh and elsewhere. Till to date there is no serious pest problem in Karonda except for *Digama hearseyana*, a defoliator in the early stages and *Simcronyx roridus,* a gall forming weevil which were reported as minor pests (Peter, 2007).

The Cetoniids are popularly called fruit and flower chafers, flower beetles and flower scarabs, belonging to subfamily Cetoniinae (Coleoptera: Scarabeidae) comprising ~4000 species. Many species are diurnal and visit flowers for pollen and nectar, or to browse on the petals, such play may have role in pollination. However, some species feed on fruits while some are termitophil. The genus *Protaetia* that originates in Asia includes some of agriculturally important pest species viz., *P. acuminata*, *P fusca*, *P. orientalis* reported as flower pests in mango, papaya etc.

Weekly survey in experimental orchards of Indian Institute of Horticultural Research, Bengaluru (12°58'N; 77°35'E), during April – June, 2013 revealed a severe incidence of cetoniid beetle, *Protaetia alboguta* (Vigors) on ripe karonda fruits, *C. carandus*. Beetles were found congregated and feeding on ripe fruits of karonda causing 15 -30% fruit damage during May-June fruiting period (Fig.1).

The beetles were found attracted to ripe fruits compared to unripe karonda fruits. The beetles fed on the flesh of the fruit by gouging with the horn in the front of the head and burying 3/4th of mouth parts in to the fruit (Fig.1). Their feeding damage and faecal matter ruined the fruit (Fig. 1). The plants with damaged fruits were found to attract more beetles than plants with undamaged fruits. The field collected beetles were kept under caged conditions to monitor their feeding and breeding activities, by supplying ripe karonda fruits daily along with moistened soil for egg laying (considering the egg laying habit of cetoniids in soil). Inspite of the observed mating activity in the cages, egg laying was not noticed. In related species, *P. fusca,* studies indicated that oviposition occurred only when suitable substrate was available and resorption of eggs was common in females (Simpson, 1990, Kumbhar *et al*., 2012).

Earlier, occurrence of *P. albogutta* was reported for the first time from Madhya Pradesh, India as new record to the species diversity of family

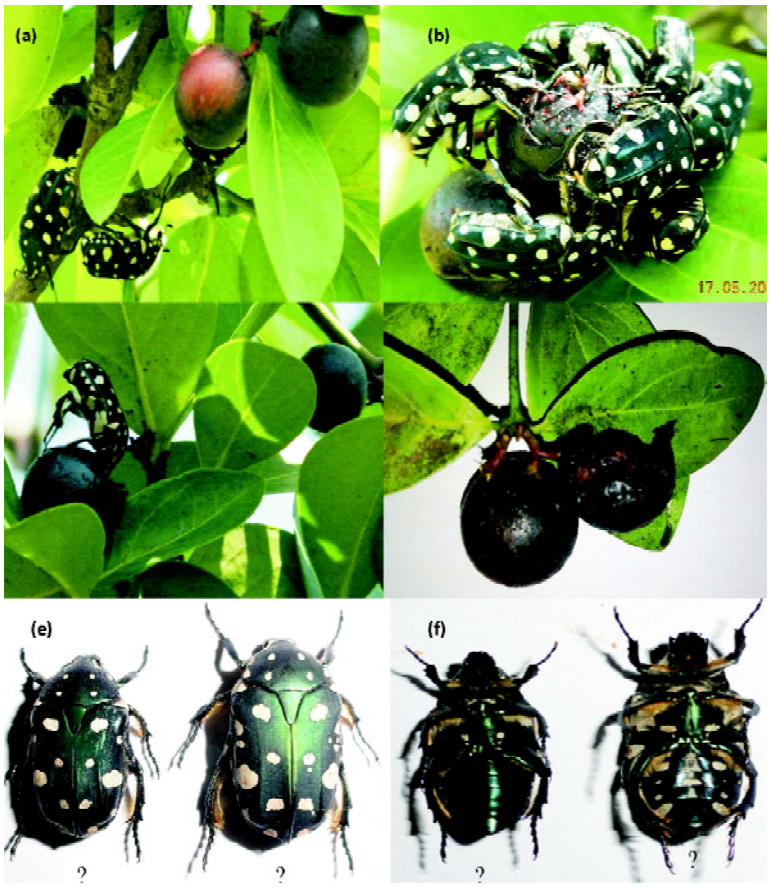

Fig.1. Adult beetles of *P. guttata* moving on karonda plants (a); Aggregation and feeding of beetles on ripe karonda fruits (b); Typical gouging and feeding posture of beetle (c); Damged karonda fruits (d); Adult male and female beetles in dorsal (e) and ventral (f) views

carabaeidae (Kailash Chandra *et al*., 2012). A check list of Cetoniidae of the Palaearctic region mentioned the other species of Genus *Protaetia* viz., *P. acanthi* (from North East China), *P. bellula* (from Yunnan, China), *P. burmanica* (from Burma), *P. cariana* (from Himalayan region, North India), *P. coenosa* (from North India), *P. delavayi* (from Yunnan, China), *P. laevicostata* (from central China) and *P. sakaiana* (from Northern Vietnam) but not *P. alboguttata* restricting its geographical distribution to only India and Nepal *(*www.gorodinski.ru/checklist- *cetoniidae-palearctic. htmlý;* www.gbif. org/species /10 80673). Its distribution on grass and flowering plants was reported by Oliver E Janson as early as 1905 in the 'Additions to the knowledge of the Cetoniidae of British India' as a common and generally distributed Indian species extending into Ceylon (= Sri Lanka).

The pestiferous nature of this cetoniid beetle was recorded earlier on brinjal, *Solanum melongena* L. where they fed on the tender shoots, flowers and flower buds in the early morning and damage ranged from 60 – 80% (Veeresh *et al*., 1980). Recently, Sekhar *et al*. (2000) found *P. alboguttata* infesting maize tassels during rainy season with characteristic aggregation habit. Our subsequent surveys in nearby orchards showed that these beetles were also found damaging ripe fruits of carambola, *Averrhoa carambola.* In near future, this beetle can pose serious threat to karonda cultivation in India.

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REFERENCES

Kailash Chandra, Salma Khan and Devanshu Gupta. 2012. New Records to the Species Diversity of Family Scarabaeidae and Hybosoridae (Coleoptera: Scarabaeoidea) of Jabalpur, Madhya Pradesh (India). Academic Journal of Entomology 5 (1): 28-36. DOI: 10.5829/idosi.aje.2012.5.1.6232

Kumbhar, S. M., Mamlavya, A. B. Patil, S.J. and Bhawane, G.P. 2012. Biology of *Chiloloba orientalis*. *Journal of Insect Science* **12: 127.** doi: 10.1673/031.012.12701

Peter, K. V. 2007. Underutilized and Underexploited Horticultural Crops, Vol 1, New India Publishing, New Delhi, 88, pp. 392

Sekhar, J. C., Sharma, R. K. and Singh, N. N. 2000. Incidence and distribution of flower eating beetles on maize *Zea mays* L. Indian J. Entomology **62**: 1-4.

Simpson GB. 1990. Immature stages of *Protaetia fusca* (Herbst) (Coleoptera: Scarabaeidae: Cetoniinae) with notes on biology. *Journal of Australian Entomological Society*. **29**:67–73.

Veeresh, G. K., Reddy, N. V., Rajanna, C. 1980. Cetoniid beetles as pests on brinjal (*Solanum melongena* L.) in Andhra Pradesh. Current Research **9**(3): 45-46.

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