

First record of Asian grey weevil (*Mylocherus undatus*) on coconut from Kerala, India

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Abstract The occurrence of Asian grey weevil *Mylocherus undatus* (Curculionidae: Coleoptera) damaging coconut (*Cocos nucifera* L.) seedlings is reported for the first time from Kerala, India. A mild to moderate level of infestation damaging 5–10% leaf lamina of un-split leaves with a typical notching-like symptom along the leaf margins is noticed on the majority of the coconut seedlings belonging to different coconut varieties, viz., ‘Chowghat Orange Dwarf’, ‘Chowghat Green Dwarf’, ‘Malayan Green Dwarf’, ‘West Coast Tall’ and Dwarf x Tall hybrids. *M. undatus* has not been reported as a destructive pest on any of the crops from India and is considered to be a pest of quarantine significance. Adult weevils have a characteristic tri-spined hind femur and elytra strongly angled broader than the prothorax.

Keywords *Cocos nucifera* · Curculionidae · Notching symptom · Quarantine pest

Grey weevils belonging to *Mylocherus* spp. (Curculionidae: Coleoptera) are important weevil pests invading numerous ornamental plants and fruit crops (Hill 1987). Ramamurthy and Ghai (1988) described 73

species in this genus from the Indian subcontinent. A total of 336 species are currently recognized as valid in this genus reported from Asia, especially from South-East Asia, the Indian subcontinent, Africa, North America, the Palearctic and Australia (O’Brien *et al.* 2006).

Asian grey weevil, *Mylocherus undatus* Marshall, a native to Sri Lanka, was first identified as damaging leaves of winged bean, *Psophocarpus tetragonolobus*, in 1990 (Shanthichandra *et al.* 1990). However, it is not a significant pest in Sri Lanka, perhaps due to the presence of effective biocontrol agents or inherent plant resistance. Currently, this species is known as an invasive pest in Florida, USA, occurring on most of the southeastern and southwestern coasts and scattered inland regions, infesting at least 81 different plant species including three ornamental palm species, viz., Burmese fishtail palm (*Caryota mitis* Lour.), Golden cane palm (*Dypsis lutescens* (H. Wendl.) Beentje & J. Dransf.) and Veitchia palm (*Veitchia* sp.) (O’Brien *et al.* 2006). Very recently *M. undatus* was reported as a potentially destructive pest of citrus in Florida (Arevalo and Stansly 2009).

In India, almond weevil (*Mylocherus letivirens*), apple weevil (*Mylocherus discolor*), cotton grey weevil (*Mylocherus undecimpustulatus* subsp. *maculosus*), mango leaf weevil (*Mylocherus sabulosus*), cocoa green leaf weevil (*Mylocherus viridanus*) and coconut ash weevil (*Mylocherus curvicornis*) were recorded as minor pests feeding on leaves of the respective hosts and at times assuming significant pest

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status (Atwal 1976; Butani 1979; Kurian *et al.* 1978; Nair 1989). These weevil pests are highly polyphagous, feeding on more than 20 host plants of economic importance and weed species. So far, *M. undatus* has not been reported as a destructive pest on any of the crops from India; however, it is considered to be a pest of quarantine significance due to its adventive nature.

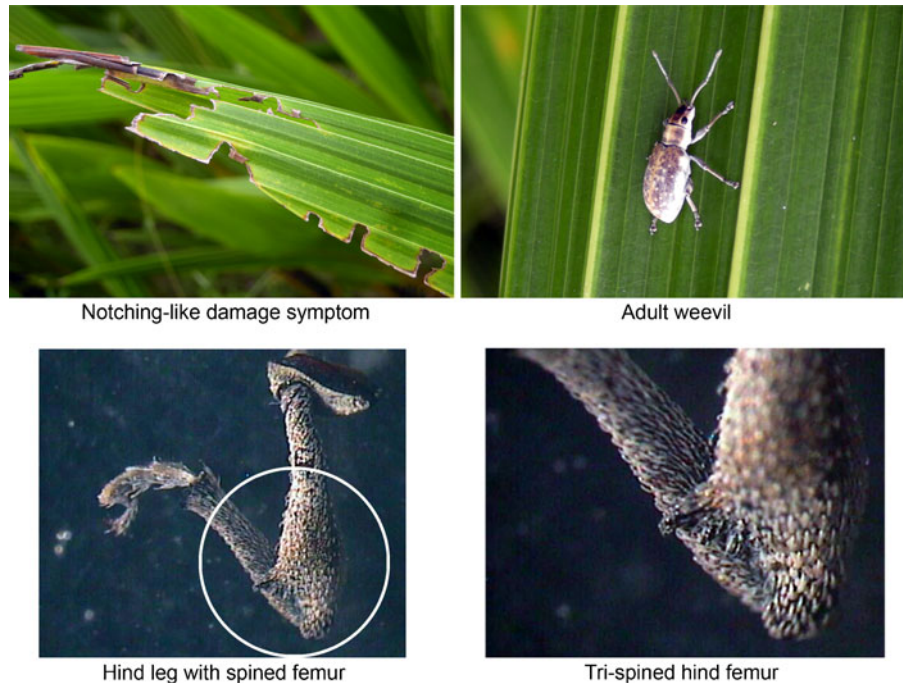
Here we report for the first time from Kayangulam (9°8'N latitude; 76°30'E longitude) and subsequently from Karunagapally (9°3'N latitude; 76°32'E longitude) regions of South Kerala, the occurrence of *M. undatus* damaging coconut (*Cocos nucifera* L.) seedlings by nibbling the un-split leaves from the margins and eating away small patches of leaf lamina. The pest was identified at National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi, and the voucher specimens are deposited at the Center. Adult weevil, spined-hind femur and damage symptoms are presented in Plate 1. Feeding by adult weevils causes semi-circular damage symptoms on the leaf blades leading to the unhealthy and sick appearance of seedlings. Necrosis of feeding area is also observed in most cases. Weevil-fed coconut seedlings are generally not preferred by the farmers. Although 81 plant species are reported as

susceptible hosts for *M. undatus* from Florida, it was unknown as a pest of coconut until now. *M. undatus* is well adapted to an equatorial climatic zone typically with the high precipitation and limited fluctuations in temperature and seasonal variations prevailing in Kerala and Sri Lanka. The reported regions in Kerala come under Western Ghats, one of the biodiversity hotspots that provide congenial environmental conditions for the survival of the pest.

In our investigation, a mild to moderate level of infestation damaging 5–10% of the leaf lamina of un-split leaves with a typical notching-like symptom along the leaf margins was noticed on the majority of the coconut seedlings belonging to different varieties, viz., ‘Chowghat Orange Dwarf’, ‘Chowghat Green Dwarf’, ‘Malayan Green Dwarf’, ‘West Coast Tall’ and Dwarf x Tall hybrids. In the nursery area with nearly 10,000 coconut seedlings, more than 40% of the seedlings were found infested by the weevil.

The adult weevil has a dull, greyish-white silvery pubescence covering on the ventral and lateral sides of the body with yellowish scales on the dorsum and head region. It has six rows of pitted black broken lines on either side of the elytron with infrequent greyish mottling. Eyes are intensely black and well projected, lacking any visible markings around the

Plate 1 Asian grey weevil, *Myloceus undatus*



Notching-like damage symptom

Adult weevil

Hind leg with spined femur

Tri-spined hind femur

corners. Fully grown adult weevils measure 8.0–8.5 mm and have geniculate antennae emerging in front of the eyes. The humeri of the forewings (elytron) are strongly angled and much broader than the prothorax. The hind femora are spined (O'Brien *et al.* 2006). The adult weevil has a peculiar behavior of dropping down (feigning death) under slight disturbances in order to escape from impending danger. Until this period, the insect was not reported as a pest on any crop from India. Eggs are laid on soft organic matter on the ground and the grubs burrow through the soil, feeding on the roots of the host plants before pupating in the soil. Because the grubs are hidden in the soil, they are difficult to be detected and are thus able to spread to different regions of Kerala through transport of coconut seedlings. The pest is likely to have more generations during the warm equatorial type of weather conditions prevailing in this locality, triggering the possibility of an outbreak situation.

As the range of larval hosts is not known and is more likely to be extensive based on the mode of spread of the pest in the West, strict quarantine is warranted for prophylactic treatment of coconut seedlings before distribution to farmers in order to avoid spread of the pest into new tracts. Bio-priming with a suitable entomopathogen, especially entomopathogenic nematodes, would be an ideal long-term solution taking into account the concealed nature of immature stages of the pest. Detailed studies on biology, population dynamics and biocontrol of the pest are in progress.

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