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Record of *Onomarchus uninotatus* (Serville, 1838) (Orthoptera, Tettigoniidae) as a pest of jackfruit from Kerala, India

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ABSTRACT: *Onomarchus uninotatus* (Orthoptera, Tettigoniidae), one of the neotropical Pseudophyllinae is recorded on the jackfruit (*Artocarpus heterophyllus*) var. Vietnam Super Early at Thrissur, Kerala, India. This is a new distributional report of the species from Kerala and additional new documentation as a serious pest of jackfruit from India. The nymphs and adults are nocturnal in habit and feed on the leaves resulting in withering and drying of the leaves giving a burned up appearance to the canopy. The species exhibited colour polyphenism with green and brown morphs in the nymphal stages. A detailed description of the nature of damage caused by the pest is given. © 2023 Association for Advancement of Entomology

KEYWORDS: Pseudophyllinae, katydid, distribution, nature of damage

The jackfruit (*Artocarpus heterophyllus* Lam (Moraceae) is an evergreen fruit crop native to tropical Asia and is rightly called "wonder fruit" or "Poor man's food" due to its high nutritional value, and rich source of dietary fiber. Jackfruit is relatively free of any serious pest infestation, though about 38 species of insect pests were reported to attack jackfruit (Tandon, 1998). Shiewei *et al.* (2013) reported *Onomarchus uninotatus* as a serious pest of jackfruit in China. However, no other reports of *O. uninotatus* as a pest of jackfruit from India or any other country have been encountered. Although Srinivasan and Prabhakar (2012) reported the presence of this katydid in India in Arunachal Pradesh and Rajaraman *et al*. (2018) observed *O. uninotatus* on jackfruit in the Western ghats, reports regarding its pest status and nature of the damage in jackfruit is nil. The authors present here the first report of the katydid pest *O. uninotatus* (Orthoptera, Tettigoniidae) from Kerala, India supported by its morphological identification, nature of the damage, and symptoms on jackfruit var.Vietnam Super Early.

During the second fortnight of January 2022, the authors observed a serious pest behavior of *Onomarchus* on jackfruit in the campus of the Academy of Climate Change Education and Research, KAU, Vellanikkara, Thrissur, Kerala (10.3244° N and 76.1627°E), India. The Katydid was found to be occupying the foliage of a new early bearing variety *viz.,*Vietnam Super Early on

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two year old jackfruit. Both nymphs and adults of katydids were collected using a sweep net, transferred to polythene bags and were brought to the laboratory of the Department of Entomology, College of Agriculture, Vellanikkara, Thrissur for identification and further studies. The feeding behavior of the nymphs and adults was observed by closely monitoring them from 9.00 am to 1.00 am. To establish the taxonomic identity, a few male and female adults in the culture were killed by using ethyl acetate and preserved as dry specimens by mounting on the entomological pin. The pinned specimens were subjected to taxonomic studies under Carl Zeiss Stereo Zoom (Stemi 305) microscope and photographed using Axiocam 105 color attached with the Zeiss image analyzer and the morphological characters were studied. Species identity was confirmed with the help of the fifth author and was updated after Orthoptera Species File Online (Cigliano *et al*., 2022).

Katydid feeding on jackfruit was identified as *O. uninotatus* by using the original description and type specimen reference images in the Orthoptera Species File (Cigliano *et al.,* 2022). The katydid species exhibited sexual dimorphism, the females are larger in size compared to the male (Plate 1). Adults are robust and the tegmina resembled a green leaf. The male measured on an average 59.9 mm in length including tegmina and the corresponding measurements for the female is 75 mm. The tegmen is broad and green in colour with a white spot on the base of the angle made by the medial and radial veins. The tegmen is about 65 mm long in females and 52 mm long in males.

The species exhibited colour polyphenism with both green and brown morphs in the nymphal stages. They mimicked the colour of the substrate, where those on dried leaves appeared brown in colour, whereas those on green leaves were green (Plate 2 A, B).

All the stages of the katydid, *viz*., eggs, nymphs, and adults were observed on the plant. Observations in the laboratory revealed that they have nocturnal feeding habits. By dusk, they started moving onto the upper surface of the leaves slowly and then started feeding and were highly active during the night. Both the nymphs and adults caused damage to the plants. The early instars scraped the green matter from the upper surface of the young leaves resulting in skeletonization. The skeletonized area appeared light green initially, which later turned brown and got dried up subsequently. The later instars and adults made notches or cuts and fed on the green leaves, including veins. Heavy population resulted in withering and drying of the outer leaves, which gave a burned-up appearance to the canopy (Plate 3). Johg (1946) reported a species similar to

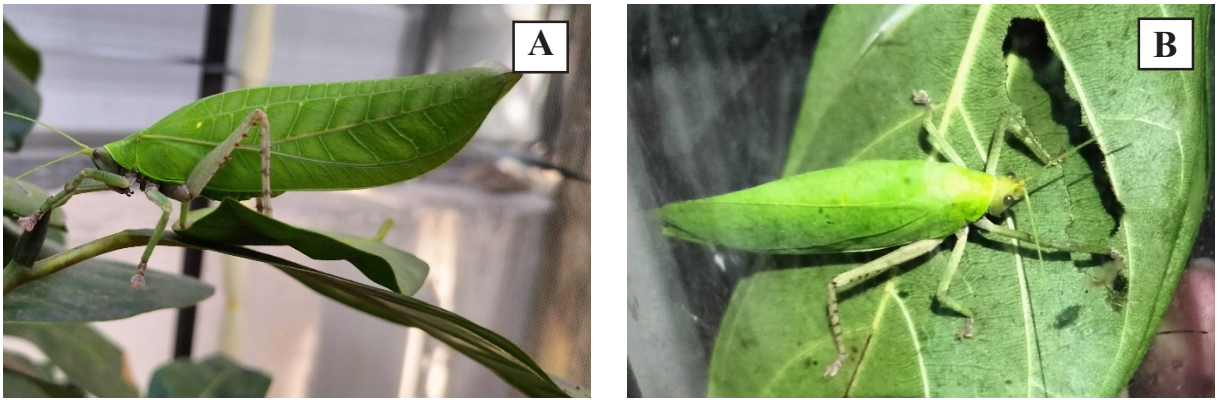

Plate 1 A. Adult female, B. Adult male

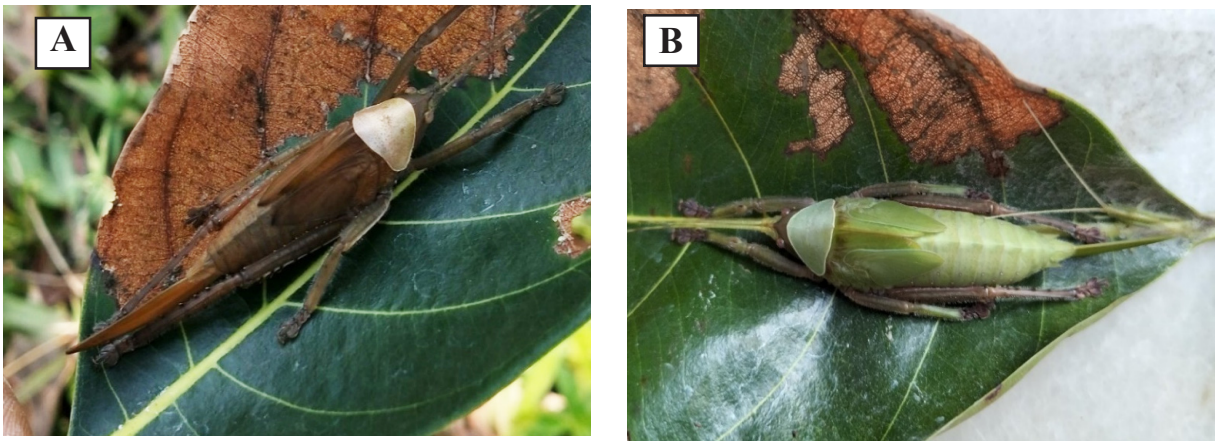

Plate 2 Colour polymorphism A. Brown morph, B. Green morph

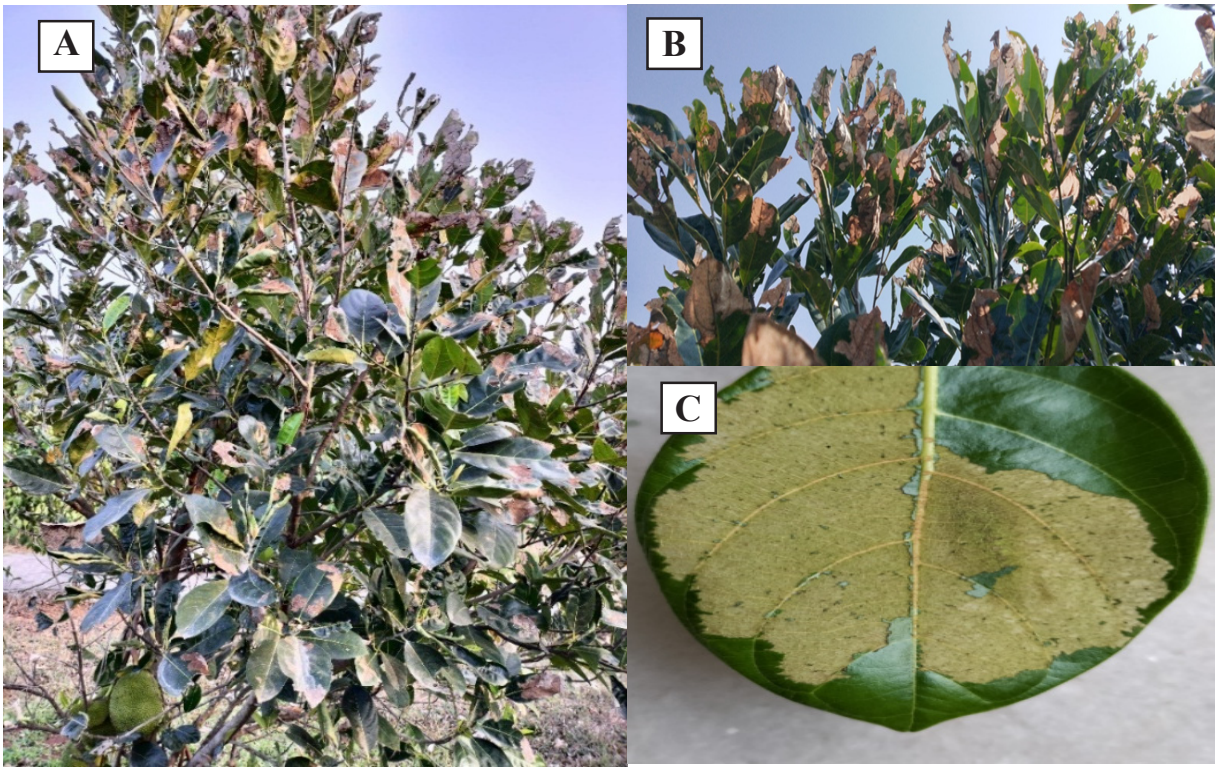

Plate 3 Symptoms of katydid infestation in field. A. Infested jackfruit tree B. Dried leaves due to infestation, C. Skeletonised leaf

O. uninotatus for the first time from Madurai, India. However, the species, *O. uninotatus* (Serville, 1838) was described (female) from Arunachal Pradesh (Srinivasan and Prabakar, 2012). It is one of the model katydids for elucidating novel acoustic signals among tettigoniids (Rajaraman *et al.,* 2015). Though the species has been reported earlier from India, the reports are of either taxonomic importance or as a model insect for acoustic studies. Hence, this report forms the first of its kind as an important pest of young jackfruits in India, and as the first report of the species from Kerala. Intensive surveys need to be initiated to identify the geographical extent to which the new pest has spread and hence, warrants constant monitoring to mitigate the damage caused by the pest.

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