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Short Communication

Saissetia coffeae (Walker) (Coccidae: Hemiptera) infestation on *Meyna spinosa* Roxb. ex Link-a new host plant and sap-sucker (pest) record from Assam, India

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Abstract

The hemispherical scale insect *Saissetia coffeae* (Walker) is reported for the first time from Assam, India infesting one-year old *Meyna spinosa* Roxb. ex Link (Rubiaceae) seedlings in nursery conditions. The host plant is attributed with medicinal properties amongst the inhabitants of the region; although occurring mostly as scanty populations in the wild, probably a cause of pest infestations.

Keywords medicinal plants pests, new record; polyphagy, sap sucker, scale insect

Introduction

Scale insects or Coccoids are sap-sucking hemipterans characterized as paedomorphic hemipterans and completely metamorphosed males [1]. The existence of protective covering/ scale and a small, cryptic habit are amongst the main features of this group of insects [2]. Scale insects, basically suck the plant sap which affects its growth, leads to defoliation, withering of shoots/entire plant. A secretion of honeydew which coats the plant surface impedes the assimilation and photosynthesis and it is also a perfect medium for sooty mould [3-5].

Saissetia coffeae (Walker), commonly known as hemispherical scale insect is a polyphagous insect and a pest of several vegetable and fruit crops [6]. Its main damage is the secretion of profuse amounts of honeydew; later colonized by black sooty mold, contaminating foliar abaxial surfaces. The honeydew is also observed to attract ants which might protect the pest from its natural enemies.

Meyna spinosa Roxb. ex Link (Rubiaceae), also known as *Kutkura* (Assamese) and *Lam heibi* (Manipuri) is a popular *albeit* wild plant of ethnomedicinal usage in hepatic, gastrointestinal and dermatic ailments amongst the people North-Eastern regions of India [7].

Methodology

In course of raising M. spinosa seedlings, the authors observed aforementioned pests on one-year old seedlings raised in the nursery at Deovan campus of Rain Forest Research Institute, Sotai, Jorhat, Assam during April-June, 2016 (Figure 1. A-D). Specimens were collected in 70% ethanol and were slide mounted as per the method of Hodgson and Henderson [8]. Literature survey [8] helped in the identification of the collected scale insect. Photographs were taken using a CANON power Shoot G/0/11 (digital) camera under a Stereozoom

Trinocular Microscope (Make: LABOVISION, Model: AZM 100)



Figure 1. (A-D)*: Saissetia coffeae* infestation on stem, spines and foliage of *Meyna spinosa*; (E) Dorsal view of adult *S. coffeae*; (F) Dorsal view of *S. coffeae* nymph (with the characteristic H mark)

Results and Discussion

***Saissetia coffeae* (Walker)**
Synonyms: *Lecanium coffeae* Walker, 1852: 1079; *Lecanium hemisphaericum* Targioni Tozzetti, 1867: 26; Cockerell & Parrott, 1899: 164; *Chermes filicum* Boisduval, 1867: 328; *Saissetia filicum* (Boisduval); *Chermes hibernaculorum* Boisduval, 1867: 328; *Lecanium coffeae* Walker, 1852: 1079; *Lecanium hemisphaericum* Targioni Tozzetti, 1867: 26; Cockerell & Parrott, 1899: 164; *Chermes filicum* Boisduval, 1867: 328; *Saissetia filicum* (Boisduval); –Fernald, 1903: 201; *Chermes hibernaculorum* Boisduval, 1867: 328.

Material examined
Meyna spinosa Roxb. ex Link (Rubiaceae) seedling leaves, petiole and branches, Deovan campus, Rain Forest Research Institute, Sotai, Jorhat, Assam. Coll. A. J. Saikia (Figure 1. A-D).

Morphological Diagnosis: (Figure 1. E-F)
Unmounted material
Adult-convex and rounded; color shiny tan; dorsal surface completely smooth; 2 mm long; Nymph-yellowish-green in colour, characteristic 'H' mark on dorsal surface

Mounted material
Dorsum-heavily sclerotised, 4µm long dorsal setae frequent throughout dorsum, ***Margin***-Setae of 2 sizes, longer between stigmatic areas and shorter between anterior stigmatic clefts, ***Venter***-well developed legs, claws without a denticle.

Distribution range
The scale insect is found throughout the tropics as well as in some other sub-tropical areas as well [9]. Its distribution range encompasses Asia, Africa, North America, South America, Europe and Oceania [10].

Damage potential
It is a pest to cultivated plants such as guava, coffee, cotton, eggplant, okra, citrus, mango, tea, banana, etc. It also infests wildly occurring plants [9].

Notes
(I) *Meyna spinosa*, is attributed with ethnomedicinal claims by the inhabitants of this region. Although producing a good seed set and exhibiting the above average seed germination percentage; it is found in scarcity. The present study investigations have shown the deformation and wilting of the plants infested by the *S. coffeae* pest. It has also been reported that the "*black looper*" caterpillar (*Hyposidra talaca* Walker) occurs as a pest for this plant. Synergistically, these two pests can be attributed to lowering the occurrence of the plant; despite of a good seed set [11].

(II) The present inspection has also re-established the polyphagous nature of the pest and added an extension of a new host in the established lists [6, 8]. Although occurring in the geographical entity (state/ country), it has no record of the observed plant species as a host [10]

Conclusion

The family Coccidae is an important group because of its role as agricultural pests or biocontrol agent and/or pests in many ecosystems. *Meyna spinosa* Roxb. ex Link is a new host recorded for *Saissetia coffeae* (Walker) in the northeastern part of the Indian sub-continent, a confluence of two biodiversity hotspots, viz.- the Indo-Myanmar and the Eastern Himalayas [12] in this study.

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Transparency declaration

The authors declare no conflicts of interest.

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