Short Communication

Jasminum multiflorum (Burm. f.) Andrews (Oleaceae) - a new host plant record for Saissetia coffeae (Walker) (Coccidae: Hemiptera) from Assam, India

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Abstract

Jasminum multiflorum (Burm.f.) Andrews, alternately known as winter jasmine, Indian jasmine, downy jasmine and/or star jasmine is reported for the first time as a host for the hemispherical scale insect Saissetia coffeae (Walker) from Assam, India.

Keywords ornamental plants, pests, polyphagy, sap sucker, scale insect

Introduction

Scale insects or Coccoids are sap-sucking hemipterans characterized as paedomorphic hemipterans [1] with a protective covering/scale along with a small, cryptic habit [2]. They induce defoliation/withering of shoots or entire plants through sucking the plant sap which eventually affects its growth. A secretion of honeydew coats the plant (both, leaf and stem) surface impeding the assimilation and photosynthesis; thereby, creating a perfect medium for sooty moulds [3-5].

Saissetia coffeae (Walker), commonly known as brown coffee scale, brown shield scale; coffee helmet scale as well as helmet scale is a polyphagous insect pest affecting the several vegetable and fruit crops [6]. It secretes profuse amounts of honeydew; which are later colonized by black sooty mold, and apart from attracting ants, they might protect the pest from its natural enemies.

Jasminum, the genus of true jasmines, probably deriving its name from the Arabic and Persian ‘yâsmîn’ or ‘yasaman’, which means "gift of gods" [7-8], comprises over 200 species from the tropics and warm temperate regions of the Old World [9]. Although originally reported to comprise about 200 species [10-11], later researches confirmed lesser number of true species [12]. The number of species occurring in India ranges from 40 [12] to 43 [13]. The cultivated jasmines fall into four species viz., Jasminum sambac, J. auriculatum, J. grandiflorum, and J. multiflorum.

Jasminum multiflorum is an evergreen, cultivated, ornamental shrub known as winter jasmine, Indian jasmine, downy jasmine and/or star jasmine. In India, a poultice made from dried leaves soaked in water is placed on indolent ulcers to promote healing and the flower is used as an emetic [14]. The plant is known to have an astringent effect on the bowels; and is used to treat fever, dysentery, stomach-ache, stomach ulcers, and kidney stones [15].
Methodology

In course of observing *Jasminum multiflorum* plants in pots 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 [16]. Literature survey [16] 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 microscope.

Results and Discussion

**Material examined**

Leaves, petioles and branches of *Jasminum multiflorum* (Burm.f.) Andrews (Oleaceae), Deovan campus, Rain Forest Research Institute, Sotai, Jorhat, Assam. Coll. A. J. Saikia (Figure 1. A-D).

Figure 1. *Saissetia coffeae* infestation on *Jasminum multiflorum* – (A) Habit of *J. multiflorum* (B) Heavy infestation on *J. multiflorum* stem (C) foliage of *J. multiflorum* (D) Enlarged view of *J. multiflorum* stem

*Jasminum multiflorum* (Burm.f.) Andrews

**Morphological characteristics**
An evergreen scrambling shrub, *ca.* 4 m in length, with slender, spreading and tomentose branches. Leaves opposite, simple; petioles 7 mm long, tomentose; blades ovate, apex acuminate, base subtruncate to cordiform, margins entire. Flowers clustered in terminal umbellate cymes on side shoots, sessile, slightly fragrant; bracts foliaceous, pubescent; calyx infundibuliform, with 5-8 linear-filiform lobes, *ca.* 1 cm long, green, tomentose; corolla hypocrateriform, with 6-9 oblong lobes, white drying brownish, the tube slender, 16 mm long, the limb 2.5 cm in diameter; stamens 2, included in the tube, the anthers 4-5 mm long; ovary superior, 4-lobate, style slender, included, stigma bilobed.

**Faunal Diagnosis**
*Morphological Diagnosis*: (Figure 1. C-D)

**Unmounted material**
*Adult*- convex and rounded; color shiny tan; dorsal surface completely smooth; 2 mm long; *Nymph*- yellowish-green in color, 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.

*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.

**Distribution range**
The scale insect is found throughout the tropics as well as in some other sub-tropical areas as well [17]. Its distribution range encompasses Asia, Africa, North America, South America, Europe and Oceania [18].

**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 [17].

**Notes**
(a) *Jasminum multiflorum*, a plant revered for its socio-cultural value, is susceptible to a number of phytophagous insects (eg. *Dialeurodes kirkaldyi*, *Corythauma ayyari*, *Ischnaspis longirostris*, *Howardia biclavis*, *Hemiberlesia palmae*, *H. lataniae*, *Aonidiella aurantii*, *Pseudococcus jackbeardsleyi*, *Paratarchardina pseudolobata*, *Amorbia emigratella*, *Spoladea recurvalis*, *Rhamphothrips pandens* and *Scirtothrips dorsalis*). The present study investigations have shown the deformation and wilting of the plants infested by the *S. coffeae* pest [18-19].
(b) 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, 16]. Although occurring in the geographical entity (state/country), it has no record of the observed plant species as a host [18-19].

Conclusion

The family Coccidae is an important group because of its role either as pests in many agricultural/other ecosystems or as biocontrol agents. *Jasminum multiflorum* (Burm.f.) Andrews is a new host recorded for *Saissetia coffeae* (Walker) in the north-eastern part of the Indian sub-continent, a confluence of two biodiversity hotspots, viz. the Indo-Myanmar and the Eastern Himalayas [20] in this study.

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Declaration

The authors declare no conflicts of interest.

References


