



## 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].

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## 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



Synonyms: *Jasminum congestum* Buch.-Ham. ex Wall; *Jasminum gracillimum* Hook.f.; *Jasminum multiflorum* var. *nicobaricum* Thoth. ; *Jasminum multiflorum* f. *pubescens* (Retz.) Bakh.f.; *Jasminum pubescens* (Retz.) Willd.; *Mogorium multiflorum* (Burm.f.) Lam.; *Mogorium pubescens* (Retz.) Lam.; *Nyctanthes multiflora* Burm.f.; *Nyctanthes pubescens* Retz.

### **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 wildy 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*, *Paratachardina 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.

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