



Insects infesting *Hibiscus rosa-sinensis* Linn. in Karnataka, India

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ABSTRACT: Survey conducted on *Hibiscus rosa-sinensis* Linn. growing in Karnataka revealed 20 species of insect pests. Of these, five species are new records.

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KEY WORDS: Shoe flower, coccids, insect pests

Hibiscus rosa-sinensis Linn. (Malvaceae), also known as shoe flower is a glabrous shrub widely cultivated in the tropics as an ornamental plant and has several forms with varying colour of flowers and distributed throughout tropical and subtropical regions. It also has medicinal properties and used in many herbal mix and drinks. Adhirajan *et al.* (2003) reported that the leaf extract of *H. rosa-sinensis* has a potential effect on maintaining the hair growth and treatment of scalp. It acts as an antioxidant and helps in the reduction of cholesterol levels (Esa, 2010); as emollients and aperients to treat burning sensations, skin disease, and constipation (Kirtikar and Basu, 1999), and has anti-inflammatory and astringent properties (Yazan *et al.*, 2011). In India, flowers and leaves are used for the abortion, antifertility, contraceptive, diuretic, menorrhagia, bronchitis, emmenggogue, demulcent and cough (Jadhav *et al.*, 2009). Various parts of the plant are also used in the preparation of jams, spices, soups, and sauces (Baranova *et al.*, 2011).

In this context survey was undertaken in parks, gardens of medicinal plants and home-yards in Karnataka for two years (2017 to 2019) to study

the insect pests infesting *H. rosa-sinensis* and the findings are presented in this communication.

The survey revealed the occurrence of 20 species of insects representing three orders viz., Hemiptera, Lepidoptera and Coleoptera infesting *H. rosa-sinensis* in Karnataka, which comprises two species of defoliators and 18 species of sap suckers (Table 1). Among the sucking pests, coccids are dominant with seven species representing four families viz., Pseudococcidae by three species, Coccidae by two species and Cerococcidae and Monophlebidae each by one species. Sundararaj *et al.* (2016) reported dominance of coccids among the insect pests on sandalwood in agroforestry conditions. One species each from families, Coreidae, Eurybrachidae, Lygaeidae, Pyrrhocoridae and Scutelleridae and two species each of the families, Aphididae, Aleyrodidae and Cicadellidae were recorded as pests of *H. rosa-sinensis*.

Among the coccids the infestation of *Coccidohystrix insolita* (Fig. a), *Paracoccus marginatus* (Fig. c) and *Phenacoccus solenopsis* (Fig. b) were often severe resulting in yellowing

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Table 1: Insects infesting *H. rosa-sinensis* in Karnataka

Sl. No.	Common name of Insect pest	Scientific name	Family: Order
Defoliators			
1	Cotton leaf roller	<i>Haritalodes derogata</i> (Fabricius)	Crambidae: Lepidoptera
2	Ash weevil	<i>Mylocherus viridanus</i> Fabricius*	Curculionidae: Coleoptera
Sap suckers			
3	Black/ cow pea Aphid	<i>Aphis craccivora</i> Koch	Aphididae: Hemiptera
4	Cotton aphid	<i>Aphis gossypii</i> Glover	Aphididae: Hemiptera
5	Spiraling whitefly	<i>Aleurodicus dispersus</i> Russell	Aleyrodidae: Hemiptera
6	Whitefly	<i>Beimisia tabaci</i> (Gennadius)	Aleyrodidae: Hemiptera
7	Yellow scales	<i>Cerococcus indicus</i> (Maskell)	Cerococcidae: Hemiptera
8	Leafhopper	<i>Hecalus arcuatus</i> (Mots.)	Cicadellidae: Hemiptera
9	Sharp shooter Leafhopper	<i>Kolla ceylonica</i> (Melichar)	Cicadellidae: Hemiptera
10	Green scale / soft scale	<i>Hemilecanium imbricans</i> (Green)*	Coccidae: Hemiptera
11	Pomegranate scale	<i>Parasaissetia nigra</i> (Nietner)	Coccidae: Hemiptera
12	Squash bug	<i>Acantocoris scabrator</i> (Fabricius)	Coreidae: Hemiptera
13	Eurybrachid bug	<i>Eurybrachys tomentosa</i> (Fabricius)*	Eurybrachidae: Hemiptera
14	Dusky cotton bug	<i>Oxycarenus laetus</i> Kirby	Lygaeidae: Hemiptera
15	Mango mealybug	<i>Drosicha</i> sp*.	Monophlebidae: Hemiptera
16	Egg plant mealybug	<i>Coccidohystrix insolita</i> (Green)	Pseudococcidae: Hemiptera
17	Hibiscus /Papaya mealybug	<i>Paracoccus marginatus</i> Williams and Granara de Willink	Pseudococcidae: Hemiptera
18	Cotton mealybug	<i>Phenacoccus solenopsis</i> Tinsley	Pseudococcidae: Hemiptera
19	Red cotton stainer	<i>Dysdercus similis</i> (Freeman)*	Pyrrhocoridae: Hemiptera
20	Jewel bug	<i>Chrysocoris stollii</i> (Wolf)*	Scutelleridae: Hemiptera

Note: * indicate the insect reported for the first time on *Hibiscus rosa-sinensis* from India

and premature shedding of leaves, loss in plant vigour, reduction in flowering and formation of deformed flowers. Nymphs and adults of aphids, *Aphis craccivora* and *A. gossypii* were found congregating on succulent stems and under surface of leaves, buds and flowers of *H. rosa-sinensis*. Curling and crinkling of leaves and flowers which become shiny and sticky due to honey dew excreted by the aphids and growth of sooty mold are the

common symptoms of infestation by aphids. The symptoms of infestation by other sucking pests are negligible. The defoliators are *Haritalodes derogata* and *Mylocherus viridanus*. Among the 20 species of insects found breeding on *H. rosa-sinensis* the record of five species of sap suckers viz., *Hemilecanium imbricans* (Fig. d), *Drosicha* sp. (Fig. e), *Dysdercus similis* (Fig. f), *Eurybrachys tomentosa* (Fabricius) and

Fig. a. *Coccidohystrix insolita* (Green)Fig. b. *Phenacoccus solenopsis* TinsleyFig. c. *Paracoccus marginatus* Williams and Granara de WillinkFig. d. *Hemilecanium imbricans* (Green)

Chrysocoris stollii (Wolf) and the defoliator *Mylokerus viridanus* (Plate g) are first report on *H. rosa-sinensis*.

Dysdercus cingulatus (Fab.) and *D. koenigii* (Fabricius) were reported to infest on *H. rosa-*

sinensis and other hibiscus species (Shukla and Upadhyaya, 1972). *D. similis* was reported to attack other malvaceous plants like cotton and okra (Singh and Pathak, 2010; Rajendran *et al.*, 2018). Species of *Chrysocoris* are phytophagous

Fig. e. *Drosicha* sp.Fig. f. *Dysdercus similis* (Freeman)Fig. g. *Myllocerus viridanus* FabriciusFig. h. *Parasaissetia nigra* (Nietner)

(Parveen *et al.*, 2013) and *E. tomentosa* is polyphagous nature (Janarthanan *et al.*, 1992). *M. viridanus* was reported on cotton (Rajendran *et al.*, 2018).

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REFERENCES

- Adhirajan N., Ravikumar T., Shanmugasundaram N. and Babu M. (2003) In vivo and in vitro evaluation of hair growth potential of *Hibiscus rosa-sinensis* Linn. *Journal of Ethanopharmacology* 88: 235-239.
- Baranova V.S., Rusina I.F., Guseva D.A., Prozorovskaia N.N., Ipatova O.M. and Kasaikina O.T. (2011) The antiradical activity of plant extracts and healthful preventive combinations of these extracts with the phospholipid complex. *Bio meditsinskaia Khimiia* 58: 712.
- Esa N.M., Hern F.S., Ismail A. and Yee C.L. (2010) Antioxidant activity in different parts of roselle (*Hibiscus sabdariffa* L.) extracts and potential exploitation of the seeds. *Food Chemistry* 112: 1055.
- Jadhav V.M., Thorat R.M., Kadam V.J. and Sathe N.S. (2009) Traditional medicinal uses of *Hibiscus rosa-sinensis*. *Journal of Pharmacy Research* 2(8): 1220-1222.
- Janarthanan S., David Livingstone and Rabeeth M. (1992) Biology of the eggs of *Eurybrachys tomentosa* (Fabr.) (Homoptera: Fulgoridae). *Hexapoda* 4 (2):107-112.

- Khan I.A., Ashfaq S., Rasheed Akbar S.H., Habib K., Fayaz W., Saeed M., Farid A., Ali I., Alam M. and Shah R.A. (2015) Population dynamics of insect pests and their natural enemies on okra, *Hibiscus esculentus* L. (Malvales: Malvaceae), in Peshawar, Pakistan.
- Kirtikar K.R. and Basu B.D. (1999) Indian Medicinal Plants. International Book Distributors, Dehradun. India. p.335.
- Parveen S., Ramamurthy V.V., Usmani K. and Khokhar S. (2013) Revision of the genus *Chrysocoris hahn* (Hemiptera: Scutelleridae) from India. The Bioscan 8(1): 219-232.
- Rajendran T.P., Ajanta B. and Prasad S. (2018) Insect Pests of Cotton. Pests and Their Management 2: 361-411.
- Shukla G.S. and Upadhyaya V.K. (1972) Relative food preference of *Dysdercus koenigii* (Hemiptera: Pyrrhocoridae). Annals of the Entomological Society of America 65(3): 762-763.
- Singh K. and Pathak S.C. (2010) Effect of *Aspergillus fumigatus* infection on cellular and humoral immune responses in red cotton stainer, *Dysdercus similis* (Heteroptera: Pyrrhocoridae). In Biological Forum—An International Journal 2(1): 9-11.
- Sundararaj R., Vimala D. and Wilson J.J. (2016) New record of scales and mealybugs (Hemiptera: Coccoidea) infesting sandalwood (*Santalum album* Linn.) in agroforestry conditions. Entomon 41(4) : 347-350.
- Yazan L.S., Foo J.B., Ghafar S.A.A., Chan K.W., Tahir P.M. and Ismail M. (2011) Effect of kenaf seed oil from different ways of extraction towards ovarian cancer cells. Food and Bioproducts Processing 89: 328.

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