



Parasitisation of soft brown scale, *Coccus hesperidum* Howard by an aphelinid wasp, *Coccophagus ceroplastae* (Howard) infesting orchids from Sikkim, India

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ABSTRACT: *Coccophagus ceroplastae* (Howard) an aphelinid parasitic wasp was found to parasitize populations of the soft brown scale, *Coccus hesperidum* Howard infesting the orchids in Sikkim, India. Parasitization under natural conditions was found to range from 5-45%. This is the first report of *Coccophagus ceroplastae* (Howard) on Soft brown scales on orchids. © 2015 Association for Advancement of Entomology

KEYWORDS: *Coccophagus ceroplastae*, *endoparasitoids*, *Coccoidea*, *Coccus hesperidum*, Orchids

Orchids are one of God's beautiful creations and have since long been admired by man. Orchidaceae, one of the largest families of flowering plants is no exception to this richness of variety. India alone has contributed nearly 1150 species belonging to 164 genera and many are discovered year after year. Knowing the immense value of orchid, collections from different parts of the country are maintained in the germplasm at National Research Center for Orchids, Pakyong, Sikkim. The place is situated at the elevation of 1300m between 27°4"- 28°7'48" N and 88°58"-88°5' 25" E longitude experiences average maximum temperature 17-28°C and minimum 6-20°C, maximum relative humidity 81-95 % and minimum 43-73%. Pakyong receives an annual rainfall upto 300 cm. The orchid flowers are well known for their uniqueness in shape, size, colour and scent are exquisitely attractive, normally remain fresh for longer period of time in comparison to other flowers. At our centre the plants are kept under open poly house/partial shade. Under poly house conditions the orchids are subjected to infestations by several insects and non-insects pests.

Soft brown scale, *Coccus hesperidum* belonging to Coccoidea, infests orchids. The adults

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FIGURE. 1(a)
Developing larvae inside the scale body.

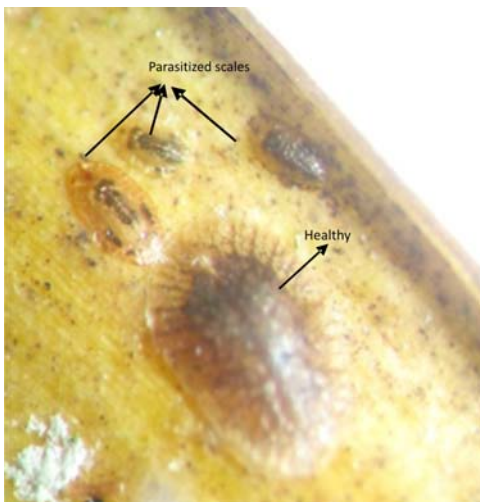


FIGURE.2.Parasitized&healthyscales

are pale brown to yellowish in colour mottled with brown spots. Direct injury by this insect pest is caused by sucking the cell sap from the leaves, petioles, leaf sheaths and pseudobulbs of many orchid genera. Being soft scale, indirect injury is caused by secretion of honeydew; a clear sticky liquid that serves as a medium for growth of black sooty molds thus hampering the photosynthetic activity of the plant. The plant losses its vigour and the overall health of the plant are lost.

The aphelinid wasp, *Coccophagus ceroplastae* (Howard) was found to parasitize the soft brown scales especially the younger stages. They are endoparasitoids of coccoida mainly soft scales, and some are parasitic on mealy bugs. The females of this wasp deposits egg into the body of the scales and the larval and pupal development took place within the body (Fig. 1 a & b). The scales with developing larvae and pupa inside them were darker in colour due to parasitism (Fig. 2). The adults black in colour emerged by making a circular hole on the scale cover (Fig. 3). The percent parasitization of the soft brown scales under open poly house conditions ranged from 5-45%.

Coccophagus ceroplastae (Howard) was for the first time reported from *C. hesperidum* infesting papaya from Hyderabad, India by Joshi *et al.* in 1981. It has also been reported from Mango scale, *Chloropulvinaria polygonata* (Dinesh and Sinha, 1991). It was reported on *C. hesperidum* on Cardamom from Saklespur, Karnataka, India. From Darjeeling district of West Bengal, *Coccophagus ceroplastae* was reported to parasitized more than one species of scale insects (i.e. *Saissetia coffeae* and *Ceroplastes floridensis*) infesting Citrus (Konar and Roy, 2008). Studies revealed *Coccophagus ceroplastae* as parasitoid of soft scales such as *Coccus viridis*, *C. hesperidum*, *Saissetia coffeae*, *Ceroplastes* spp., *Pulvinaria psidii*, *P. polygonata* (Coccidae) (Hayat, 1998). In Bangladesh the aphelinid parasite *Aneristus ceroplastae* Howard was recorded from soft scales *Ceroplastes pseudoceriferus* Green and *Chloropulvinaria polygonata* (Ckll.) (Homoptera: Coccidae) on mango (Ali M, 1978). *C. ceroplastae* parasitized *Aspidiostus destructor* S. infesting Mango in U.P, India. In Australia *C. ceroplastae* was reported to be the dominant parasitoid in reducing the soft scale insect *Pulvinaria urbicola* (Cockerell) infesting *Pisonia grandis* trees (Smith *et al.* 2004). Huang and Huang (1988) reported *C. ceroplastae* from citrus scale, *Ceroplastes floridensis* in China. Hayat *et al.* (2003) reported *C. ceroplastae* from coccoids infesting sandalwood from South India.

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