

Parasitism of Cymbidium Scale, *Lepidosaphes pinnaeformis* (Bouche) infesting Cymbidium Orchids by Aphelinid parasitoid, *Aphytis* sp. from Sikkim, India.



Agriculture

KEYWORDS : Cymbidium, Parasitoids, *Lepidosaphes pinnaeformis*, *Aphytis* sp.

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ABSTRACT

Cymbidium scale, *Lepidosaphes pinnaeformis* (Bouche) was found to be parasitized by an Aphelinid wasp belonging to the genera *Aphytis*. The percent parasitization was found to range from 6 – 38 %. Its occurrence is reported for the first time on Orchids from Sikkim, India.

The species of genus *Aphytis* Howard (Hymenoptera: Chalcidoidea: Aphelinidae) are considered to be the most important natural enemies of the armored scale insects (Homoptera: Diaspididae) (Hanan and Hedaya, 2013). *Aphytis* is an aphelinid with Cosmopolitan distribution, many of its species have been used successfully in the biological control of armored scales diaspidae and they are the most important natural enemies of several serious pests; *Aphytis* species develop exclusively as primary ectoparasitoids on such scales (Myartseva, Ruiz-Cancino & Coronado-Blanco, 2010).

The aphelinid wasp, *Aphytis* sp. was found to parasitize the cymbidium scale insect, *Lepidosaphes pinnaeformis* infesting Cymbidium orchids under polyhouse conditions throughout the year. The adults of *Aphytis* sp. were found foraging on the leaves. The females deposit their eggs on the body of the scale; the larval and pupal development taking place by consuming the body contents of the scale insect (Fig. 1 & 2). The adults emerged by making a circular hole in the shell (Fig. 3 & 4). The parasitized scales appeared flat and darker in colour. The activity of this parasitoid was found from April to first week of December. However, its activity decreased and it suffered high mortality due to reduction in temperature during winter. The per cent parasitization by the parasitoid under polyhouse conditions was recorded to range from 6-38 %.

Several species of *Aphytis* wasp has been reported on different scale insects. In India, *Aphytis proclia* as parasitoid of *Quadraspidiotus perniciosus* from Jammu and Kashmir and Himachal Pradesh were reported by Thakur *et al.* (1989). *Aphytis bengalensis* reported as parasitoids of diaspidid *Pseudaulacaspis barberi* on mangoes in Karnataka and *A. sankarani* and *P. cockerelli* on *Areca catechu*, bananas, coconuts and *Michelia champaca* in Karnataka and Tamil Nadu, India (Rosen & Debach, 1986). *Aphytis melinus* DeBach and *A. lepidosaphes* Comp., are of considerable value as biological control agents of scale insects attacking citrus, particularly *Chrysomphalus dictyospermi* (Morg.) and *Lepidosaphes beckii* (Newm.) (Benassy C, 1977). In Syria, *Aphytis lepidosaphes* (Compere), *Aphytis lingnanensis* (Compere), *Aphytis chrysomphali* (Mercet), *Aphytis melinus* (DeBach), *Aphytis maculicornis* (Masi) and *Aphytis hispanicus* (Mercet) reported as parasitoids from Citrus orchards, Syria (Basheer, Asslan, Al-Razzaq, Saleh, Alshadidi & Mohammad, 2012). *A. lepidosaphes* reported as an ectoparasitoid of *Aonidiella aurantii*, *Chrysomphalus aonidium* (Linnaeus), *Cornuaspis beckii* Newman, *Insulaspis gloverii* (Packard), *Lepidosaphes* sp. Studies revealed *A. hispanicus* as ectoparasitoids of armoured scales belonging to genera *Partaloria* and *Lepidosaphes*. In Lebanon, *A. chrysomphali* is the main parasitoid of Florida Red Scale, *Chrysomphalus aonidium* (Traboulsi, 1969).



Fig. 1. Developing larva on body of scale



Fig. 2. Pupa of *Aphytis* sp. (Scale cover removed)



Fig. 3. Adult of *Aphytis* sp.



Fig. 4. Emergence holes on shell cover

Photos: Taken by Ms. Rumki Ch. Sangma

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