

## Margarodidae (Hemiptera: Insecta) of the Seychelles islands

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**Abstract:** One species of Margarodidae (Coccoidea; Hemiptera; Insecta) has been recorded from the Seychelles islands: *Icerya seychellarum*. This is a widely introduced species and its original distribution is not known. The earliest records of the species are reviewed and it is concluded that this is probably a Western Indian Ocean species native to Seychelles, the Mascarenes and Madagascar. A second Margarodidae species is described from the Seychelles island of Silhouette. *Gigantococcus dilleniae* is an endemic species with an obligate association with the endemic tree *Dillenia ferruginea*.

**Key words:** *Icerya*, *Gigantococcus*, *Dillenia*

Literature on Seychelles Coccoidea includes only one species of Margarodidae, the cosmopolitan mealy-bug *Icerya seychellarum*. This species is an agricultural pest and is widely introduced and its original distribution is obscure. Here I review the distribution and origins of *I. seychellarum* and describe a new species of Margarodidae endemic to the Seychelles islands.

***Icerya seychellarum*** (Westwood, 1855)

*Dorthisia seychellarum* Westwood 1855: 836

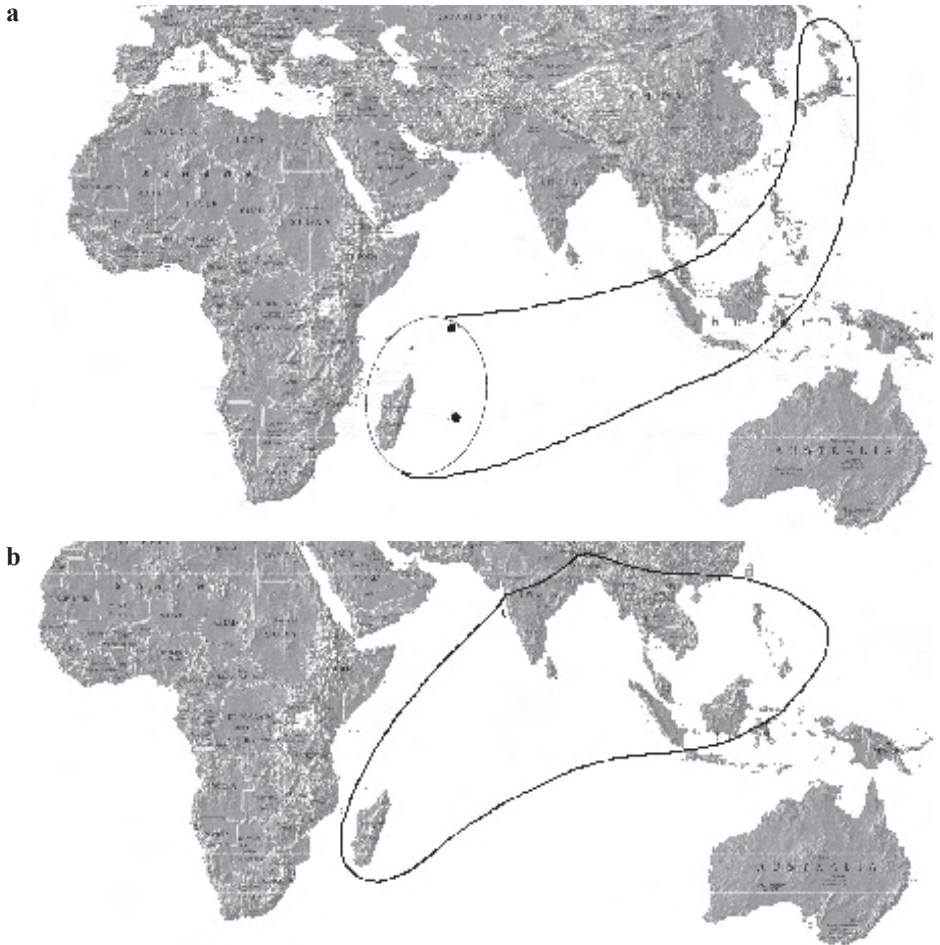
*Icerya seychellarum* Green 1907: 198

*Icerya seychellarum* was first described in 1855 from a specimen on a cultivated plant originating in Seychelles. Westwood (1855) assumed that the insect had been imported along with the plant, and thus was of Seychelles origin. The next record of the species is from Mauritius, based on a specimen collected sometime before 1867. Subsequently it was recorded in Madagascar (1904) the Philippines (1905), Japan (1907), Africa (1914), the Mascarenes and Comoros (1943) and South America (1946) (Fig. 1a). Since then it has been identified throughout the tropics. The dating of the early samples suggests a Western Indian Ocean origin, and dispersal from the region in the late 1800s to early 1900s. The original Seychelles record cannot be proved to be correct but it is notable that several insect species were described at that time based on specimens found in hot houses, which have subsequently been found in Seychelles (and in some cases this remains the only known locality).

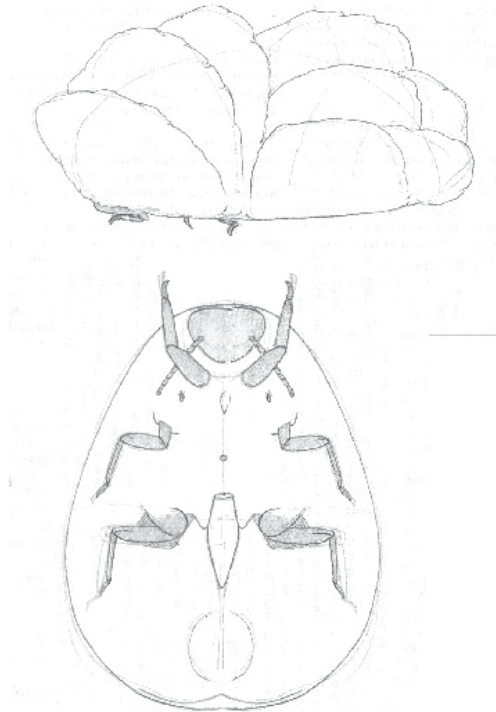
*Icerya* is a mainly Asian genus, although several species have become pantropical or even cosmopolitan. *I. seychellarum* is related to several other species, forming the '*Icerya seychellarum* group'. These other species are found in India, Sri Lanka, Vietnam and Hong Kong (Fig. 1b). Within the group *I. seychellarum* may be most closely related to *I. crocea* of India, Sri Lanka and Hong Kong. This distribution

suggests that the *I. seychellarum* group is primarily south-Asian; many Western Indian Ocean insects have affinities to south-Asian species, further supporting the suggestion that *I. seychellarum* may originate from the Indian Ocean. It is difficult to draw any wider comparisons; many of the other coccoids of the Seychelles islands may be introduced, of the 6 probably indigenous species 1 is Australasia, 2 Indo-Pacific, 1 east Asian and 2 occur in Seychelles, India and Sri Lanka. All the apparently endemic coccoids belong to widespread genera.

In Seychelles the first locality records are from 1905 (Green 1907) when it was collected on Mahé, D'Arros, Poivre and Desroches. The lack of other localised records reflects a lack collecting of coccoids until the early 1900s and then only on agricultural estates of Mahé and the Amirantes. It is thought to have colonised Aldabra in 1967,



**Fig. 1.** a) Range of *Icerya seychellarum* prior to 1910. b) Range of '*Icerya seychellarum* group'



**Fig. 2.** *Gigantococcus dilleniae*, adult female in lateral and ventral view.. Scale bar 2mm

although similarly no coccid collections were made on the atoll prior to this date. Thus it can be concluded that by the time coccoids were collected the species was established in the granitics, Amirantes and Aldabra.

***Gigantococcus dilleniae* sp. nov.**

**Material examined** - 2 females collected Mon Plaisir 15.xii.1993. 1 adult female – Mon Plaisir, Silhouette 13.vii.2000 (det. C. Hodgson). All collected on *Dillenia ferruginea* trunks, Mon Plaisir, Silhouette.

**Description:** Adult female oval (holotype 8.4 mm long, 5.8 mm wide, widest across abdomen), widest towards posterior; covered with white wax in several rows. Head and thorax region covered by three transverse rows, front half of abdomen with 5 longitudinal rows, posterior half with 4 rows radiating out from centre of abdomen. Intervening spaces with granular wax. Ventral abdomen with a thin layer of white wax. Antennae 9 to 10 segmented; each segment with short hair-like setae. Eyes circular, at base of antennae.

Legs well developed; forelegs shorter than mid- and hind legs. Hair-like setae scattered in groups on derm, not noticeably longer around margin. Compound multilocular pores usually with trilocular centre covering dorsum and margins of ventral

**Table 1.** Measurements of *Gigantococcus dilleniae*, all 8.x11.2009

Specimen	Length	Width	Height	
Holotype (Hh2009.1)	8.4	5.8	-	
Paratype (Hh2009.2a)	9.1	7.0		
Paratype (Hh2009.2b)	7.7	5.6		
Paratype (Hh2009.3)	11.4	6.4	7.3	female with nymphs

head and thorax and submarginal to marginal ventral abdomen. Simple multilocular pores with trilocular centre scattered on ventromedial head and thorax. Marsupium present, marsupial band forming narrow V-shape with lateral flanges at anterior. Cicatrices not visible. Anal tube surrounded by long hair-like setae; derm around anal opening not sclerotized. Unlike other *Gigantococcus* species the derm does not become sclerotized, even in the largest individuals with the exception of a small area of the abdomen under the posterior femorae.

Nymph: typical for Icerini. Two pairs of wax blocks on thorax and eight pairs of on abdominal segments. Long hair-like setae at apex of abdomen in 3 pairs (typical of *Gigantococcus*). Length 1.2mm. 115 nymphs in one female.

Notes: The *Dillenia ferruginea* trees that are fed on by *Gigantococcus dilleniae* also support *Icerya seychellarum*, but this latter species only feeds on leaf and flower petioles, not the trunk of the tree.

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