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A new genus and species of felt scale (Hemiptera: Coccoidea: Eriococcidae) from New Caledonia

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Abstract

A new genus of Eriococcidae, *Choneochiton* Hodgson, is introduced to take a new species, *Choneochiton casuarinae* Hodgson, Mille & Cazères, off *Casuarina collina* (Casuarinaceae) from New Caledonia. All stages except the pupa and prepupa are described and illustrated. The new species is thought to be endemic to New Caledonia.

Key words: Hemiptera, Coccoidea, Eriococcidae

Résumé

Un nouveau genre d'Eriococcidae, *Choneochiton* Hodgson, est décrit avec une nouvelle espèce, *Choneochiton casuarinae* Hodgson, Mille & Cazères, de Nouvelle-Calédonie. Tous les stades excepté pupaux et prépupaux sont décrits et illustrés. La nouvelle espèce est considérée comme endémique de Nouvelle-Calédonie.

Introduction

The Eriococcidae or felt scales are the fourth largest family of scale insects (Hemiptera: Coccoidea) and are most abundant in the southern Hemisphere, especially New Zealand (Hoy, 1962) and Australia (Cook & Gullan, 2004; Hardy & Gullan, 2007, 2010; Hardy *et al.*, 2008, 2011). However, the Eriococcidae have been shown to be non-monophyletic based on the morphology of both the adult males (Hodgson, 2002; Hodgson & Hardy, 2013), adult females (Cox & Williams, 1988) and also using molecular analyses (Cook *et al.*, 2002; Cook & Gullan, 2004; Gullan & Cook, 2007). These studies suggest the existence of three major lineages in the Eriococcidae *sensu lato*, one of which is Gondwanan in distribution and encompasses species from Australia, New Zealand and South America. It is unclear as to which lineage the new genus belongs.

The scale insects of New Caledonia have not been studied often but were last comprehensively covered, in the wider context of a study of the tropical South Pacific region, by Williams and Watson (1988a, 1988b, 1990), who described and illustrated all of the species then known from this country. Of these, only one genus and 28 species were thought to be endemic, most being tropicopolitan (Williams, 2007; Mille *et al.*, *in press*). Since then a few more species have been added (Williams *et al.*, 2006; Williams, 2007) bringing the total now known to 117 (Mille *et al.*, *in press*).

At the time of Williams and Watson's (1990) study, only two eriococcid species were known from New Caledonia, the endemic *Chazeauana gahniae* Matile-Ferrero, on *Gahnia novocaledonensis* (Cyperaceae), and the cosmopolitan *Eriococcus araucariae* Maskell. Later, Williams (2007) described three more species, *Eriococcus millei* Williams, off an unidentified plant collected at Belep, and a new genus, *Rhopalotococcus* Williams, with two species, *R. dugdalei* Williams and *R. metrosideri* Williams, both off *Metrosideros* sp. (Myrtaceae), collected at Mt. Koghis. All three of these are considered to be endemic, bringing the total of endemic species in New Caledonia to 31 and endemic genera to two, both Eriococcidae.

with small penial sheath pores. Basal rod short, 8–9 µm long. Aedeagus gradually narrowing towards apex, but not extending past end of penial sheath, 66 µm long.

Comment. The adult males of *C. araucariae* can be quickly distinguished from all other adult male “eriococcids” in having the following combination of characters: (i) a particularly large group of pores on the dorsal surface of the head, laterad to the dorsal mid-cranial ridge; (ii) presence of an alar lobe but absence of hamulohalteres; and (iii) fleshy and hair-like setae rather similar, each frequently with a slightly capitate apex. Pores on the dorsal surface of the head are not infrequent on eriococcids but are generally few, with the possible exception of the South American *Tectococcus ovatus* Hempel, which has many pores of two types (Hodgson & Miller, 2010). Almost all male eriococcids either have alar lobes and hamulohalteres, or neither. However, the presence of alar lobes without halteres is not unique and is known in several other eriococcid genera (*Ovaticoccus* (e.g., *O. agavium* Douglas (Afifi, 1968; Hodgson, unpublished); several species of *Apiomorpha* (e.g., *A. rosaeformis* (Froggatt) (Hodgson, unpublished)). And, whilst the fleshy and hair-like setae are sometimes hard to separate, they rarely have capitate apices.

Discussion

The only scale insect family in which endemic species have been described from New Caledonia is the Eriococcidae, in which only six species have been recorded, but five of these are endemic and with four of them belonging to three endemic genera. These three genera are very different and unique in structure.

Key to Eriococcidae from New Caledonia (modified after Williams, 2007)

1. Anal lobes strongly developed and prominent 3
- Anal lobes absent *Rhopalotococcus* sp. 2
2. Hind legs with tibia + tarsus conspicuously longer than those of more anterior legs. Antennae seven segmented. Microducts absent. Anal ring with two setae only; suranal setae absent *R. metrosideri* Williams
- Hind legs with tibia + tarsus about same size as more anterior legs. Antennae six segmented. Microducts present. Anal ring with four setae, suranal setae present *R. dugdalei* Williams
3. Dorsum with large macrotubular ducts, each with 1–5 associated setae; ventral derm of mesothorax in characteristic ridges between pro- and mesothoracic coxae *Choneochiton casuarinae* Hodgson, Mille & Cazères
- Dorsum without large macrotubular ducts; ventral derm of mesothorax without characteristic ridges between pro- and mesothoracic coxae 4
4. Marginal enlarged setae each expanded at apex, abruptly pointed. Legs vestigial, minute. Antennae each four segmented *Chazeauana gahniae* Matile-Fererro
- Marginal enlarged setae tapering to a blunt or pointed apex. Legs well developed. Antennae each with six or seven segments *Eriococcus* sp. 5
5. Marginal enlarged dorsal setae at least three times as long as dorsomedial setae. Dorsomedial setae short, truncate with parallel sides *E. araucariae* Maskell
- Marginal enlarged dorsal setae at most only twice as long as dorsomedial setae. Dorsomedial setae pointed, similar in shape to marginal setae *E. millei* Williams.

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