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## First evidence of cynipids from the Oceanian Region: the description of *Lithonecrus papuanus* a new genus and species of cynipid inquiline from Papua New Guinea (Hymenoptera: Cynipidae, Synergini)

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### Abstract

*Lithonecrus papuanus* Nieves-Aldrey & Butterill, a new genus and species of inquiline oak gall wasps (Hymenoptera: Cynipidae: Synergini), is described from material reared from galls on *Lithocarpus celebicus* (Miq.) Rehd., collected in Papua New Guinea. The new genus and species is the first record of a cynipid from Papua New Guinea and the whole Oceanian biogeographic region, and represents the easternmost oriental record of a cynipid wasp (Hymenoptera: Cynipidae). The new genus is similar to *Saphonecrus* Dalla Torre & Kieffer, and to the recently described *Lithosaphonecrus* Tang, Melika & Bozsó, but differs from these genera in several important diagnostic characters. Taxonomic affinities and differences with related genera and species and biogeographical implications are discussed.

**Key words:** Cynipidae, Synergini, new genus, inquilines, Lithocarpus, gall wasps, Papua New Guinea

### Introduction

The family Cynipidae (Hymenoptera: Cynipoidea) is a species-rich group of insects comprising more than 1400 species (Nieves-Aldrey 2001; Csóka *et al.* 2005; Liljeblad *et al.* 2008) in eight tribes (Nieves-Aldrey *et al.* 2009; Liljeblad *et al.* 2011). The majority of cynipids, also called gall wasps, are highly specialized phytophagous insects able to induce complex galls on plants, but the family also contains representatives that inhabit plant galls induced by other insects. The great majority of this second group of gall wasps, also termed inquilines or agastoparasites (*sensu* Ronquist 1994), are grouped in the tribe Synergini; they inhabit the galls of other cynipids and also galls induced by cecidosid moths on *Rhus* species (van Noort *et al.* 2007).

The tribe Synergini comprises 8 genera and 170 species worldwide, but they are distributed mainly in the Holarctic Region (Nieves-Aldrey 2001; Liljeblad 2002; Melika *et al.* 2005; Nieves-Aldrey & Medianero 2011; Penzes *et al.* 2012). Six of these genera are obligate inquilines in galls hosted by the family Fagaceae, mainly on *Quercus*, but also in *Castanopsis*, *Chrysolepis* and *Lithocarpus*: *Ceroptres* Hartig, *Synergus* Hartig, *Saphonecrus* Dalla Torre & Kieffer, *Synophrus* Hartig, and the recently described *Ufo* Melika & Pujade Villar and *Agastoroxenia* Nieves-Aldrey & Medianero, which are also assigned to this biological group (Melika *et al.* 2005; Nieves-Aldrey & Medianero 2010). *Synergus* is the most species-rich inquiline genus, with more than 90 known species distributed in the Holarctic region.

The inquiline oak gall wasp fauna of the Oriental Region has been poorly studied, and until recent works, records of Cynipidae from that region were very scarce. Two *Saphonecrus* species, *S. serratus* Weld and *S. areolatus* Weld, were described from the Philippines (Weld 1926), but biological data is lacking, while a third species *Saphonecrus excisus* (Kieffer) was described even earlier from Bengal, Kurseong (India), reared from galls

collected in Malaysia were found in the collection of the British Museum of Natural History, London (Abe *et al.* 2007). In this paper we provide the first evidence of native cynipids in the whole Oceanian region as well as the first record east of the Oriental Region. Paretas-Martinez *et al.* (2013) reported the presence of two introduced cynipid species in Australia, *Phanacis hypochoeridis* (Kieffer 1887) and one unidentified *Andricus* species, but as far as is known there is no evidence of a native gall wasp fauna in the region.

In the entire Oriental Region there are more than 300 species of *Lithocarpus* and more than 130 of *Castanopsis* (Govaerts & Frodin 1998), while 7 species of *Lithocarpus* and one of *Castanopsis* have been recorded in the forests of PNG and some adjacent islands (Conn & Damas 2006). Given that these plants are potential hosts for cynipids (Penzes *et al.* 2012; Liu *et al.* 2012), the existence of more species of gall wasps is highly likely considering the large and relatively unexplored areas of the Oriental and Australasian regions. To reveal this fauna more sampling effort will be necessary.

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