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Three new species of *Kerria* (Hemiptera: Sternorrhyncha: Coccoidea: Tachardiidae), a redescription of *K. yunnanensis* Ou & Hong, and a revised key to species of *Kerria*

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Abstract

Three new species of lac insect, *Kerria* Targioni-Tozzetti viz., *Kerria manipurensis* Ahmad & Ramamurthy **sp. nov.**, *Kerria maduraiensis* Ahmad & Ramamurthy **sp. nov.**, and *Kerria thrissurensis* Ahmad & Ramamurthy **sp. nov.** are described and illustrated. *Kerria yunnanensis* Ou & Hong is illustrated and redescribed, and a key to the known species of *Kerria* is provided. The usefulness of star pores as a diagnostic character in the subgeneric divisions of *Kerria* is also discussed.

Key words: *Kerria*, lac insects, new species, key to species, taxonomy

Introduction

Scale insects (Sternorrhyncha: Coccoidea) are phytophagous insects found in all terrestrial zoogeographical regions except Antarctica, with about 7500 species in about 30 families (Ben-Dov *et al.*, 2001). These are generally divided into two informal groups, the archaeococcoids and the neococcoids based on the presence or absence of abdominal spiracles in the adult female. The latter group comprises 17 families which are treated as a monophyletic group, with a sister group relationship between the Coccidae and the Tachardiidae (= Kerriidae; Ben-Dov & Lit, 1998) based on SSU rRNA (Cook *et al.*, 2002). Although Scalenet (<http://www.sel.barc.usda.gov/scalenet/scalenet.htm>) and many authors are adopting Kerriidae as the family name for lac insects, Tachardiidae is being retained here in view of the explanations given in Varshney (1999).

Lac insects belong to the family Tachardiidae and are morphologically distinctive scale insects that produce a resinous secretion that forms the hard covering or test over the body (Chamberlin, 1923; Varshney, 1976). This family includes nine genera and 90 species (Varshney, 2009), of which 21 species, based on the characters of the antennae, brachia, brachial plate, dimples, marginal duct clusters, star pores and supra-anal plate, belong to the genus *Kerria* Targioni-Tozzetti, and are currently placed in two subgenera, viz., *Kerria* and *Chamberliniella* (Varshney, 1984). The taxonomy of this genus is known from the monographs and supplement by Chamberlin (1923, 1925) and subsequently through the papers of Kapur (1958), Varshney (1976), Gullan & Kondo (2009), Wang *et al.*, (1982) and Zhang (1993).

In this paper, three new species of *Kerria* from India are described and illustrated with line drawings and scanning electron microscopic images. In addition, *Kerria yunnanensis* Ou & Hong is redescribed with additional taxonomic details to those in the original description. A key to all species currently known in the genus *Kerria* and details of the deposition of their type material also are included. The present study concludes that the presence of star pores, which had been considered a diagnostic feature of the subgenus *Chamberliniella*, cannot be used to support the subgeneric classification as they are found in species of both subgenera.