



## ***Roussoellaceae*, a new pleosporalean family to accommodate the genera *Neorousoella* gen. nov., *Roussoella* and *Roussoellopsis***

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### **Abstract**

*Roussoella* and *Roussoellopsis* species are mostly known from monocotyledons (large grasses, bamboo and palms). Detailed phylogenies for this group are lacking and thus their family placement and relationships with other genera are unclear. Fresh collections of several *Roussoella*-like species, including the type species *Roussoella nitidula* were made from bamboo and palms in Thailand. In order to obtain a phylogenetic understanding of *Roussoella*-like species within the order *Pleosporales*, we carried out the phylogenetic analyses of ITS, LSU, *TEF1a* and *RPB2* loci. The 15 target strains formed a well-supported clade (100% BS/1.00 PP) in phylogenetic reconstructions of individual and combined datasets, supporting the introduction of a new family *Roussoellaceae*. The *Roussoellaceae* clade can be distinguished into three well-supported sections, namely *Roussoella/Roussoellopsis* (93% BS/1.00 PP), *Roussoella* (88% BS/1.00 PP) and *Neorousoella*. Based on both morphology and phylogenetic analyses, we introduce *Neorousoella* gen. nov., epitypify *Roussoella nitidula* which is the type species of the genus, and introduce the new species *Neorousoella bambusae*, *Roussoella Chiangrainia*, *R. japonensis*, *R. neopustulans*, *R. siamensis*, *R. thailandica* and *R. verrucispora*.

**Key words:** Asexual morphs, Epitype, Phylogeny, Pleosporales, Taxonomy, Type

### **Introduction**

The *Pleosporales* is the largest order in the class *Dothideomycetes*, including 43 families, 332 genera and more than 4 700 species (Kirk *et al.* 2008, Lumbsch and Huhndorf 2009, Schoch *et al.* 2009a, b, Hyde *et al.* 2013). Most taxa were previously included in *Dothideomycetes* based on morphology. Many important taxonomic studies on this large and difficult group of *Ascomycota* incorporating molecular phylogeny have been published (Crous *et al.* 2006, 2009, 2012, Zhang *et al.* 2008, 2009a, 2009b, 2012, 2013, Schoch *et al.* 2009a, 2009b, Tanaka *et al.* 2009, Gruyter *et al.* 2010, 2012, Boonmee *et al.* 2011, Chomnunti *et al.* 2011, Liu *et al.* 2011, 2012, Manamgoda *et al.* 2011, Hyde *et al.* 2013, Woudenberg *et al.* 2013). However, several groups are not well-resolved because of few collections, lack of recent studies, and most importantly lack of molecular sequence data.

*Roussoella* was introduced with the type species *R. nitidula* Sacc. & Paol., recorded from bamboo in Malacca, Malaysia (Saccardo and Paoletti 1888). Höhnelt (1919) proposed *Roussoella hysteroioides* as the type species of *Roussoella* as an earlier name was found in *Dothidea hysteroioides*; this combination was accepted by Müller and Arx (1962). The latter authors assigned *Roussoella* to *Amphisphaeriaceae*, a family characterized by broad, cylindrical, unitunicate asci, immersed ascostromata, and two-celled, brown ascospores. Aptroot (1995a) described the asci in *Roussoella* as unitunicate and transferred three species to this genus. Aptroot (1995b), however, modified his concept of *Roussoella* and considered the asci to be bitunicate.

Ascomycetes on bamboo and palms are commonly observed with immersed ascostromata containing long, cylindrical, thin asci and brown, two-celled, ornamented ascospores; this might have caused the confusion that *Roussoella* belonged *Amphisphaeriaceae*. Hyde *et al.* (1996) discussed these fungi, and two groups with such characteristics were

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