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A molecular reappraisal of *Nimbospora* (Halosphaeriaceae, Microascales) and a new genus *Ebullia* for *N. octonae*



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ABSTRACT

Nimbospora is a genus in the Halosphaeriaceae with three species: *N. effusa* (the type species), *N. bipolaris* and *N. octonae*. All species have two-celled ascospores with a prominent sheath. A second type of appendage is present in two species, a single tuft of fibrillar appendages is present in *N. effusa* and two occur in *N. bipolaris*. *Nimbospora effusa* and *N. bipolaris* are morphologically similar, but there are major morphological differences in ascomatal morphology between *N. effusa*/*N. bipolaris* and *N. octonae*. In this study, we investigated the morphology of *N. effusa* and *N. octonae* and the phylogenetic relationships of the three *Nimbospora* species based on partial sequences of 18S and 28S rRNA genes. Bayesian analysis suggested that *Nimbospora* is not monophyletic. *Nimbospora effusa* groups with *N. bipolaris* in a well-supported clade, with *Naufragella spinibarbata* forming a sister group. *Nimbospora octonae*, however, clusters with *Haligena elaterophora* in a separate, well-supported clade. The ascomata of *N. octonae* differ from those of *N. effusa* and *N. bipolaris* by their thick peridium, and ascospores that lack equatorial tufts of appendages but possess polar and equatorial subulate appendages after the sheath is dissolved. Based on these characters and the correlating phylogenetic distance, the new genus *Ebullia* is established to accommodate *N. octonae*.

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1. Introduction

Nimbospora Jørg. Koch is a genus in the Halosphaeriaceae, Microascales (Sordariomycetes, Ascomycota) with *N. effusa* Jørg. Koch as the type species (Koch 1982). Currently, there are three lignicolous species in *Nimbospora*, namely *N. effusa*, *N.*

bipolaris K.D. Hyde & E.B.G. Jones (Hyde and Jones 1985) and *N. octonae* Kohlm. (Kohlmeyer 1985). Originally described from driftwood collected from a coastal area of Sri Lanka in the Indian Ocean, *N. effusa* is a typical member of the Halosphaeriaceae, with globose ascomata, catenophyses, thin-walled, deliquescent asci and hyaline ascospores with

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