**Systematics and phylogeny of the genus *Pilophorus* (Cladoniaceae, Ascomycota)**

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The genus *Pilophorus* (Cladoniaceae, Ascomycota) includes twelve accepted species. This genus is characterized by dimorphic thalli that consist of a granulose or squamulose primary thallus and a erect fruticuse secondary thallus, called pseudopodetium. It is the only genus of Cladoniaceae in which cyanobacteria are present in cephalodia as secondary photobionts. In addition, its geographical distributional patterns contrast with those of other genera in the family. While most of the diversity of Cladoniaceae is distributed in Southern Hemisphere, *Pilophorus* is restricted to boreal, arctic, and oceanic montane areas in Northern Hemisphere. The species have been traditionally distinguished by the morphology and anatomy of the apothecia (shape of the apothecia, presence of columella, boundary-texture or pigment-boundary) as well as thallus characters, including degree of branching, size, and coloration. So far, extensive molecular studies of the genus *Pilophorus* have not been performed. Here we provide the first comprehensive molecular phylogeny of the genus based on 91 specimens representing eleven species. Sequences of five loci, ITS rDNA, IGS rDNA, mtLSU, *rpb2* and *ef1α* were obtained to estimate the phylogeny. These data supported many of the traditional species concepts, but also pointed to unrecognized species and problems with the existing taxonomy.

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