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**Molecular phylogeny of the lichen-forming fungi genus *Astrothelium* in Thailand**Theerapat Luangsaphabool<sup>1\*</sup>, Jittra Piepukiew<sup>2</sup>, Anthony Whalley<sup>3</sup>, Thorsten Lumbsch<sup>4</sup>, Ek Sangvichien<sup>5</sup><sup>1</sup>Program in Biotechnology, Faculty of Science, Chulalongkorn University, Thailand<sup>2</sup>Botany, Faculty of Science, Chulalongkorn University, Thailand<sup>3</sup>Microbiology, Faculty of Science, Chulalongkorn University, Thailand<sup>4</sup>Science & Education, The Field Museum, United States<sup>5</sup>Biology, Faculty of Science, Ramkhamhaeng University, Thailand

*Astrothelium* is a genus of crustose lichens included in Trypetheliaceae. The genus occurs in tropical regions with approximately 40 species worldwide. Fourteen mycobionts were isolated from ascospores of lichens and grown on MYA medium for 9 weeks at room temperature (25-30°C). Phylogenetic relationships were inferred from a combined data set including the ribosomal internal transcribed spacer (*ITS*) and mitochondrial small subunit (*mtSSU*) regions and morphological characters were studied and mapped on the inferred trees. The results of the phylogenetic analyses show that Thai *Astrothelium* diversity can be classified into at least seven species. However, not all distinct clades are characterized by a unique morphology. For two of the putative species (*Astrothelium* sp. 1 and 2) one of the single locus trees did not resolve them as distinct and hence the circumscription and relationships of these two clades remain uncertain. Phenotypically the two putative species can be distinguished by the presence or absence of parietin: while parietin is inconsistently found in *Astrothelium* sp. 1. it regularly occurs in *Astrothelium* sp. 2. The results of this study are on par with previous studies on Thai *Astrothelium* species where phylogenetic studies suggested that the species diversity in Thailand is higher than previously expected.

Keywords: Phylogeny, lichen-forming fungi, *Astrothelium*, Trypetheliaceae

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