**PHYLOGENY OF GREEN-ALGAL *Lobaria* IN THE HIMALAYAS AND THE HENGDUAN MOUNTAINS**

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In this study, the Southeast Asian diversity of green-algal *Lobaria* (Schreb.) Hoffm was evaluated by applying both morphological and phylogenetic approaches. Multi-locus phylogenetic analysis of 766 green-algal *Lobaria* specimens collected between 2016 and 2019 was performed using a three-locus and time-calibrated species-tree approach. The analyses demonstrate that pairs of sexually and vegetatively reproducing lineages split into highly supported monophyletic clades. Taxonomically, 11 green-algal *Lobaria* species were identified as new to science, while 9 were previously described species and one remains to be determined. The species differentiated during the Pliocene and Pleistocene. The coincidence of paleoclimatic events with estimated dates of divergence supports a bioclimatic hypothesis for species evolution in the green-algal *Lobaria*. Molecular phylogenies, a summary of diversity, detailed new species descriptions, and geographical analyses are provided. Special recognition of species with a long evolutionary history, which merit high conservation priority, will be especially critical for preserving geographically restricted endemics in the Himalayas and the Hengduan Mountains, where habitat loss is driving rapid declines. Funding: Swiss National Science Foundation (grant JRP IZ70Z0\_131338/1 to CS), National Natural Science Foundation of China (No. 31970022, 31670028), Second Tibetan Plateau Scientific Expedition and Research Program (No. 2019QZKK0503), and China Scholarship Council.