A little explored lichen hot spot in tropical Asia: 66 new species and 666 new records from Sri Lanka

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Tropical lichens are an extremely successful and diverse group of fungi. The combination of a topographically varied and geologically ancient landscape and repeated influxes of biota from spatially and temporally disparate biogeographic regions have resulted in a highly diverse lichen biota in Sri Lanka, including species that apparently are absent from India. For instance, Sri Lanka became one of the Graphidaceae hot spots in the world. During a lichen collecting trip made in 2015, in representative wet, dry, submontane and montane habitats on the island, 66 new species and 666 new records in many different genera were discovered. With new species described previously, Sri Lanka has become the country with the highest number of new species and new records reported per area size during the past four years. In addition, fresh material was collected of species which were hitherto only known from older type material: as a result, molecular analysis was carried out elucidating the phylogenetic positions of endemic genera, e.g. Leightoniella. Comparison with other recently explored areas of tropical Asia reveals Sri Lanka as a hot spot for lichen diversity in this region.

Lichen biodiversity in tropical islands: the case of the genus Sticta in Puerto Rico

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Tropical islands exhibit the highest number of species and the largest proportion of endemics per unit area for many biological groups making them important hotspots for biological diversity worldwide. While biodiversity patterns and geographical distributions in insular regions are well understood for many organisms, the extent to which these patterns apply to groups like lichens remain largely unknown. Here we present a phylogenetic analysis for the lichen genus Sticta in Puerto Rico to determine how well the current morphology-based taxonomy agrees with phylogeny and to make inferences about the biogeographical history of this group in the island. Following a multi-locus approach, we show that species-level taxa appear dispersed within and among clades from different geographic regions suggesting that extant species assemblage was likely shaped by multiple colonization events. We found that the flora is composed of a combination of widespread and previously unrecognized endemic species and that the recognized number of species using morphology-based approaches resembles that obtained from our phylogenetic approach. We will discuss potential factors influencing the observed patterns, as well as how the case of Sticta in Puerto Rico provides useful insight on our understanding about lichen dispersal and evolution in ecosystems.

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Diversity of the lichen family Graphidaceae in mangrove forest, Eastern Thailand

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Graphidaceae is the highest diversity of crustose lichens, with nearly 2,400 known species. They are typically found on barks and very occasionally on rocks or leaves. Our objective was to explore the diversity of lichen family Graphidaceae in mangrove forests in Eastern Thailand. Over 1,500 specimens were collected and identified to 48 species within 21 genera; Carbacanthographis, Chapsa, Creographa, Diorygma, Dyplolabia, Fissurina, Glyphis, Graphis, Leiorreuma, Leptotrema, Leucodecton, Melanotrema, Nadvornikia, Nitidochapsa, Ocellularia, Pallidogramme, Phaeographis, Platygramme, Sarcographa, Stegobolus and Thelotrema. During the identification of the materials, several species have been discovered as new record for Thailand. In addition, Nitidochapsa siamensis is described as new to science and five species are expected to be new species. Our results emphasized that mangrove forests had distinctive characters which were favorable for specific lichens to grow on this forest type, either new additions to the lichen biota of Thailand or even new for science.

Drivers of lichen community composition in old growth and secondary lowland rain forests of northeast Borneo

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We have studied the epiphytic lichen communities in two of the largest remaining areas of old growth lowland rainforest in the Malaysian state of Sabah (NE Borneo), separated by extensive areas of oil palm plantations and secondary forests. We have compared the lichen communities within and between these areas with those found in logged forest fragments, following principles of the BioAssess-protocol. We found significant differences in lichen communities of old growth from those of logged forests, but also between the two old growth forest areas. Lichen communities from both old growth forest areas include a wide range of taxa significantly associated with specific features such as tree girth, bark structure and the presence of buttresses. The effects of bark pH and polyphenol content are less significant. Logged forests support fewer taxa, most of these being associated with disturbance, but relicts of "old growth" taxa can survive in low frequencies. The use of a quantitative approach, estimating frequency of each taxon in each plot, allows us to detect the scale of devastation of lichen communities in the logged forest and the shifts between lichen communities associated with a range of conditions in the old growth forest.

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