

Dozens of new lichen species discovered in East African mountain forests

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The name of the genus *Leptogium* alludes to a thin but uniform cortex covering the outer surface of the thallus of these lichens, in contrast to many of their relatives. When dry, the lobes of many jelly lichens are paper-thin, often covered with skinlike wrinkles, but they swell markedly when moist. The morphological differences between *Leptogium* species are often subtle and open to interpretation, and the outer appearances of individual species can also vary greatly depending on environmental factors. Even chemical characteristics cannot be used as an aid for identification to the extent to which they are used

with many other groups of lichens. Credit: Jouko Rikkinen

The species diversity and relationships of lichens in the genus *Leptogium*, which are often very difficult to identify to species, were assessed on the basis of DNA analyses using a large dataset collected during more than 10 years from East Africa. "The lengthy groundwork is finally complete," says Jouko Rikkinen, Professor of Botany at the University of Helsinki, Finland, giving a sigh of relief.

The [research article](#) just published by Rikkinen's group focuses on [species diversity](#) in the genus *Leptogium*, a group of jelly lichens that are common in the mountain forests of East Africa. Thousands of [lichen](#) specimens were collected from Kenya and Tanzania in 2009-2017, including nearly 600 *Leptogium* specimens.

DNA analyses revealed that the dataset on *Leptogium* included more than 70 different species, of which no more than a dozen or so are previously known. DNA analyses were necessary, as [species identification](#) based on thallus structure is notoriously difficult in this group.

"The morphological differences between species are often subtle and open to interpretation, and the outer appearances of individual species can also vary greatly depending on environmental factors. Even chemical characteristics cannot be used as an aid for identification to the extent to which they are used with many other groups of lichens," Rikkinen notes.

Due to problems in species delimitation and identification, *Leptogium* specimens with a more or less similar outer appearance collected from different parts of the world have traditionally been assigned to the same species. For example, *Leptogium cyanescens* and *Leptogium rivulare*, species which grow in Finland, have been thought to also inhabit the

tropical rain forests of East Africa. However, the new research findings indicate that many *Leptogium* species can have narrow ranges, and that the total number of [species](#) in the genus is much higher than previously thought.

"Similar results have also been obtained from many other genera of lichens whose diversity has been recently studied with DNA analysis methods," says Docent Ulla Kaasalainen, who leads a research project on tropical lichens at the University of Göttingen.

More information: Ulla Kaasalainen et al, Diversity of *Leptogium* (Collemataceae, Ascomycota) in East African Montane Ecosystems, *Microorganisms* (2021). [DOI: 10.3390/microorganisms9020314](https://doi.org/10.3390/microorganisms9020314)

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