Tropical lichens and edible fungi from the temperate forest of Huitzilac, Morelos, part of the Biological Corridor Chichinautzin, Mexico

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The Biological Corridor Chichinautzin is a natural protected area, including the national parks of Lagunas de Zempoala and Tepozteco. The corridor is of vital importance for the water supply, for species conservation and for non-timber products that support the economy of the people living in the area. The principal goal of this study was to inventory the species composition of lichens and edible fungi from the temperate forest of Huitzilac, Morelos Mexico. Sampling was opportunistic and non-quantitative, on all available substrates. Preliminary results revealed 50 species of lichens and 23 species of edible fungi. The lichens belonged to eight families and 24 genera. Parmeliaceae had the highest number of species, including *Melanohalea mexicana*, an endemic species for Mexico. On the other hand, edible fungi belonged to six families and 15 genera. Agaricaceae had the highest number of species, including threatened species such as *Morchella conica*, *M. angusticeps* and *Boletus edulis*, species with special protection status like *Cantharellus cibarius* and species with special permission to be collected like *Amanita caesarea*. Our results show that the Biological Corridor Chichinautzin harbors species important to the conservation of the ecosystem and the traditional knowledge.

Growth model of *Parmotrema tinctorum* in the dry dipterocarp forest, Thailand

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The lichen *Parmotrema tinctorum* is widely distributed in Thailand, with potential to be utilized for several purposes. Dry dipterocarp forest (DDF) is one the favorite habitats for this lichen. This study aimed to develop a growth model and construct a growth curve of *P. tinctorum* that enable us to estimate age, growth rate and lifespan during thallus development. Expansions of fifty five thalli with diameters ranged from 1.51 – 17.5 cm were measured every season during July 2013 – April 2015 in the DDF at Khao Yai National Park, Thailand. It showed that this lichen had the highest growth rate during rainy season. Growth model was developed from the growth rate of each thallus size, and the growth curve was developed from a Non-linear regression equation. It illustrated that the thallus achieved the highest growth rate, or log phase, when thallus diameters were 5-30 cm. As such, it could be estimated that the age of the 32 cm largest thallus, observed in this study, is approximately 50 years old. However, the growth models of this lichen in different ecosystems need further specific monitoring to improve information regarding the influence of environmental factors over life and development of the living entity.

Growth rates of *Parmotrema tinctorum* on different artificial substrates and aspect orientation in Thailand

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The lichen *Parmotrema tinctorum* has been used for biomonitoring of air pollution and silk dying in Thailand. Enhancing its production is necessary to sustainably utilize this lichen. This study observed the growth of *P. tinctorum* transplanted on different artificial substrates and aspect orientation. Transplantation of 360 thallus fragments were performed on white plastic screens (WS) and black plastic nets (BN), oriented toward the East (E), the West (W) and horizontally (H) in a secondary forest. Microclimates of the three aspects were measured. After a year, the average growth rates of thalli on the BN in all aspects were 4.4 times higher than those on the WS. The growth rates of lichen on three aspects over the BN averaged 7.83 mm/yr, ranged from 6.55–9.95 mm/yr, whereas those on the WS were only 1.76 and 0.84–2.98 mm/yr, The East facing thalli on both substrates had the highest growth rates, and those on the horizontal had the lowest rates. However, thallus growth rates on the H, W and E over the BN were 7.8, 4.8 and 3.3 times higher than those over the WS. Differences in microclimate and mesh size of the substrates were the main causes of variation in thallus growth.

Rare saxicolous lichen communities in Lithuania

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The lichens of rocks in Lithuania is somewhat understudied and the phytosociology of the epilithic communities is completely unknown. The natural epilithic lichen flora is predominantly acidophilous. The most diverse siliceous rock-inhabiting species are found on moraine boulders, which are included into the Geosites database of the Lithuanian Geological Survey and are protected under various conservation regimes. Present study of saxicolous lichens and their communities was performed in 2014–2015 in Šaukliai Geological Reserve – one of the largest boulder fields in Lithuania. The aim of the research was to study saxicolous lichens communities on granite boulders, to describe their structure, to evaluate their ecological and sociological links and to determine threats to the rare species and communities. Communities were studied on 21 boulders following Wirth (1972). During the field studies ecological variables were recorded: rock size and position above soil level, exposure, boulder diameter and rock type. Three associations with dominant species of lichens that are rare and threatened in Lithuania were determined. These associations include five lichen species that are included in Lithuanian Red Data Book: *Lasallia pustulata*, *Rhizocarpon viridiatrum*, *Umbilicaria deusta*, *Umbilicaria polyphylla*, *Xanthoparmelia mougeotii*.