

Diversity and Ecological Importance of Foliicolous Lichens in Korea

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South Korea is covered primarily by temperate vegetation; therefore, foliicolous lichens may not be expected to play an important role in its lichen flora. Indeed, more than 100 years after the first lichen record from South Korea reported by Hue, the paper "Pyrenocarpous lichens in Korea" published by Moon and Aptroot, reported on the presence of two foliicolous lichens, *Strigula nemathora* Mont, and *S. smaragdula* Fr., for the first time in South Korea. No detailed reports on foliicolous lichens have since been published in South Korea. In Japan, the neighboring country, approximately 83 foliicolous lichen species are distributed at the southernmost part under temperate to subtropical climatic conditions. However, a large number of foliicolous lichens, with many recent records, have been reported in neighboring countries like China and Taiwan. According to Thor et al., studies on foliicolous lichen flora of Asia are comparatively poor compared to those reported from America.

There are six lichenogeographical regions: the Neotropics, Valdivia, Tethyan, African Paleotropics, eastern Paleotropics, and Neozelandic-Tasmanian, which are demarcated based on the known worldwide distribution pattern of foliicolous lichen flora. South Korea belongs to the eastern paleotropic region, where a higher number of local endemic foliicolous lichens have been reported. So far, there are a total of six known foliicolous lichen taxa from South Korea; *S. concreta*, *S. macrocarpa*, *S. melanobapha*, *S. nemathora*, *S. smaragdula*, and *S. subelegans* from Jeju Island. So far, the genus *Strigula* is the only known representative of the foliicolous lichen flora in South Korea. Among the recorded species, *S. concreta*, *S. smaragdula*, and *S. subelegans* are abundant and widespread. Japan, the closest area to Jeju Island, has the same distribution pattern of foliicolous lichens, with *S. smaragdula*, *S. melanobapha*, and *S. subtilissima*.

Pollen studies conducted by Chung reported that changes in vegetation on Jeju Island, due mainly to deglacial warming and the influence of geographical change, resulted from sea-level rises. In general, all of the foliicolous lichens observed so far were restricted to the southernmost part of South Korea, particularly Jeju Island. Island might be influenced by its geographical setting. One reason could be the close dispersal distances of spores and vegetative propagules from areas such as the southern part of Japan and eastern part of China, where more foliicolous lichens can be found. Thor et al. also showed that the southern part of Japan harbors more foliicolous lichens than the northern part. Considering that China is close to Jeju Island, many foliicolous lichens, including *S. concreta*, *S. macrocarpa*, *S. nemanthora*, and *S. smaragdula*, have been reported from Yunnan province, the southernmost part of China. Geographically, this province is far away from Jeju Island. In other provinces, such as Shandong, Jiangsu, Shanghai, and Zhejiang, which are closer to Jeju Island, no foliicolous lichens have been recorded so far. Therefore, the chance of spores and propagules coming from such closer areas is questionable. Thus, the location of origin of ancestors of foliicolous lichens of South Korea and the time and means of their invasion of this island is controversial. The current study would lead the way to finding answers to the above mentioned questions.