



The lichen genus *Cetrelia* (Parmeliaceae, Ascomycota) in India

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Abstract

A detailed morpho-taxonomic account of ten species of the lichen genus *Cetrelia* occurring in India is provided. *Cetrelia chicitae* (W.L. Culb.) W.L. Culb. & C.F. Culb., is reported as new to India. A key to all worldwide known taxa of *Cetrelia* is provided.

Key words: taxonomy, lichenized, ascomycetes, diversity

Introduction

The genus *Cetrelia* W.L. Culb. & C.F. Culb., is characterized by the following features: Thallus foliose, loosely attached to the substratum, upper surface shiny white to grey or tan, pseudocyphellae laminal, upper cortex prosoplectenchymatous, lower surface black to brown with a whitish marginal zone, rhizines sparse. Apothecia rare, laminal to submarginal, disc perforate or not; spores colourless, ellipsoid; pycnidia marginal, immersed, conidia bifusiform. *Cetrelia* species produce alectoronic, anziaic, atranorin, divaricatic, imbricatic, microphyllinic, olivetoric, perlatolic, α -collatolic and 4-*O*-demethylimbricatic acids (Culberson & Culberson, 1968; Randlane & Saag, 1991; Obermayer & Mayrhofer, 2007). Ecology: mostly on bark but sometimes also on rocks and bryophytes. The species exhibit a wide range of altitudinal distribution from 1000 to 4500 m.

Randlane *et al.* (2013) listed 18 species of *Cetrelia* (Parmeliaceae) from different parts of temperate and subalpine areas of the world, out of which 10 species are known from India. Luo *et al.* (2007) revised the South Korean species of *Cetrelia* and reported four species from the region. Lai *et al.* (2009) studied cetrarioid lichens and reported nine species of *Cetrelia* from north east China. Recently Otnyukova *et al.* (2009) revised *Cetrelia* from Siberia and described *Cetrelia sayanensis* as a new species. Randlane and Saag (2006, 2007) keyed out cetrarioid lichens from Southern Hemisphere and Europe. Thell & Miao (1999) carried out phylogenetic analysis of ten cetrarioid taxa from Europe and North America. Thell *et al.* (2002) and Nelsen *et al.* (2011) studied phylogeny taxonomy of cetrarioid lichens from different part of the world. According to Amo de Paz *et al.* (2011), Crespo *et al.* (2007, 2010) & Thell *et al.* (2012) morphologically some genera identified as cetrarioid but phylogenetically they belong to parmelioid core group.

Singh & Sinha (2010) mentioned the occurrence of nine species of *Cetrelia* from India. *Cetrelia cetrarioides*, a sorediate taxon, was reported as the most common one in the country, but the intensive examination of herbarium specimens revealed the erroneous identification of many specimens. Infact, many samples turned out to belong to *Cetrelia chicitae*, as both taxa are sorediate and have, at a first glance, a somewhat similar spot test reaction with C and KC. Our intensive and careful chemical investigations of *Cetrelia* specimens collected from different phytogeographical regions of India (particular of those determined as *C. cetrarioides*) revealed the common occurrence of *C. chicitae* in India. For separating characters between all sorediate taxa of *Cetrelia* see notes under *C. cetrarioides*. The paper deals detailed morphotaxonomic account of the *Cetrelia* in India, together with their distribution. A key for all the *Cetrelia* species so far known from the world is also provided.