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## The cyanolichens of Italy: an ecological overview

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This paper provides an overview on the ecology of the total cyanolichen biota of Italy, testing for relations between morpho-biological traits and ecological factors. Data on the ecological requirements and some main morpho-biological traits of all species of bipartite cyanolichens occurring in Italy were retrieved from an online database. A matrix of 205 species and ecological variables was submitted to multivariate analysis (classification and ordination). Six main ecological groups of species were distinguished, distributed along a gradient of humidity and temperature, from extreme dry habitats on sunny, steeply inclined calcareous rocks, to very humid and shaded habitats on tree bark. The relationships between species groups and morphological traits were assessed by Analysis of Concentration. From arid to humid environments and from geologically more primeval substrata (rocks) to more recent ones (tree bark), morphologically simpler, sexually reproducing, evolutionarily primitive cyanolichens (e.g. Lichinales) are progressively replaced by more complex, often asexual species belonging to more recent groups (e.g. Peltigerales). This suggests that the present ecology of cyanolichens reflects their evolutionary history.