2. Biological soil crusts on natural substrata

JIŘÍ NEUSTUPA

In temperate landscapes dominated by forest, meadow and agricultural components, biological soil crusts develop mostly on places with any type of regular disturbance that hampers vascular plant cover. In our project, we chose several localities on natural substrata with microbiotic crust surface in order to compare their principal biotic components (cyanobacteria, algae, fungi, mosses and lichens). In addition, we asked whether there is any perceivable similarity between species composition of crusts from semiarid subtropical ecosystems and our Central European localities. Biological soil crusts are definitely a rare phenomenon in temperate landscape. Thus, our investigation was in most cases limited to localities of just one, or a few, square meters. We report the species composition of these sites and we compare their diversity with the published data (Belnap & Lange 2001; Johansen 1993) on microphytic biota of large-scale natural biological soil crusts of different ecosystems.

The presentation of floristic data differs in individual chapters concentrated on particular groups composing the crusts. The algal and cyanobacterial species composition was mostly characterized by moderate species richness and relatively high stability of species composition. Therefore, the data were interpreted using a set of standard multivariate methods of ecological ordination and we presented the figures of most conspicuous species. On the other hand, microscopic fungi were extremely diversified and variable so that the ordination methods have rather limited applicability and the mosses and lichen data characteristic by their very low diversity are only presented as the floristic list.

The data from comparative agricultural non-crust localities were only included into fungal and bryophytes chapters. Algae and cyanobacteria had not a single species occurring jointly in crusts and on the non-crust soil surfaces and lichens were even completely missing from these microhabitats. Therefore, the chapters dealing with these groups only include the crust localities data.