



The Conjugates of Phenolic Acids in Lichens of the Order *Lecanorales*

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Lichens are symbiotic associations of a fungus (usually an ascomycete) and a photobiont, which may be an alga and/or a cyanobacterium. Lichens dominate on about 6–8% of land surface, mainly in the habitats with severe climatic conditions. Lichenized fungi are among the pioneer vegetation on bare rock or soil. Mat-forming species contribute substantially to the soil cover in tundras and high mountain elevations. Lichens are rich in water-soluble compounds which can be leached-out the lichen thalli with atmospheric depositions. We have recently described the occurrence of water-soluble phenolics in lichens (Zagoskina et al 2013). These compounds can play important role in the ecosystem functioning and primary soil formation (weathering, humification). The aim of this work was to study qualitative composition of water-soluble phenolics in the lichen species widespread in the soil cover of tundra zone. The air-dried thalli of *Alectoria ochroleuca*, *Cetraria islandica*, *C.nigricans*, *C.nivalis*, *Cladonia arbuscula* and *C.stellaris* were homogenized to powder and used for the study. Lichens were collected in Khibiny mountains, Kola Peninsula in August 2013. Phenolic compounds were extracted by distilled water (1h, 30C) and analyzed by TLC before and after the acid hydrolysis. It was found that all the lichens under the study contained the conjugates of phenol carboxylic acids. We have identified that non-phenolic part in some of these conjugates was represented by sugars and amino acids. The TLC of the hydrolyzates of water extracts revealed occurrence of p-oxybenzoic acid in all of the species studied. The lichens *Cetraria islandica*, *C.nigricans* and *Cladonia stellaris* contained also vanillic acid. These phenolic acids are widespread in plant kingdom and are known as products of lignin decomposition in higher plants. The physiological role of water-soluble phenolics in lichens as well as their environmental role are need to be understood in future studies.

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