

ANTIMICROBIAL AND ANTIOXIDANT ACTIVITY OF SOME CORTICOLOUS LICHENS SAMPLED IN ARMENIA

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Many cultures use lichens for various purposes e.g. wound healing, antipyretic, anesthetic etc. This wide range of activities is however connected with the secondary metabolites produced by lichens and due to this broad range of interesting chemical compounds lichens have been used as sources of pigments, perfumes and human medicines. Several lichen extracts have been used for various remedies in folk medicine, and screening of lichens has revealed the frequent occurrence of metabolites with antifungal, antibacterial, antiviral and antitumor properties. Despite relatively small area, Armenia has large diversity of lichens, biotechnological potential of which, still remains unexplored. The aim of this study was to investigate of antioxidant and antimicrobial activity of methanol, ethanol, acetone and aqueous extracts of some corticolous lichens sampled from Armenia.

Following tests were carried out for 6 corticolous lichen species collected on the territory of Armenia (*Ramalina sinensis* Jatta, *R. farinacea* (L.) Ach., *Flavoparmelia caperata* (L.) Hale, *Everniaprunastri* (L.) Ach., *Punctelia subrudecta* (Nyl.) Krog *Pseudevernia furfuracea*, *Parmelia sulcata*) Antioxidant activity was evaluated by free radical scavenging method. The antimicrobial activity was carried out by disk diffusion method, the minimal inhibitory concentration was determined by the agar dilution method against five species of both Gram-negative and Gram-positive bacteria and one species of fungi.

Methanol, ethanol and acetone crude extracts from all tested lichens were active against only Gram-positive bacterial strains. Methanol revealed as the most effective solvent for solubilizing antimicrobial compounds for almost all tested lichens. Aqueous extracts of all tested lichens showed no significant antibacterial and antifungal activity. Methanol extract of *R. sinensis* was the most active antimicrobial agent with minimum inhibitory concentration values ranging from 0.9 to 1.8 mg mL⁻¹. *P. furfuracea* was only lichens among tested materials demonstrated antifungal activity (0 12 mm). Methanol extract of *P. sulcata* demonstrated relatively high antioxidant activity (71 %).

The extracts of tested corticolous lichens demonstrated a strong antioxidant and antimicrobial effects and may be used as a source of natural antioxidant and antimicrobial agents.