

# **Antimicrobial Activity of Extracts of Chemical Races of the Lichen *Pseudevernia furfuracea* and their Physodic Acid, Chloroatranorin, Atranorin, and Olivetoric Acid Constituents**

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The antimicrobial activity and the MIC values of the ethanol, chloroform, diethyl ether, and acetone extracts of the chemical races of *Pseudevernia furfuracea* (var. *furfuracea* and var. *ceratea*) and their physodic acid, chloroatranorin, atranorin, and olivetoric acid constituents have been investigated against some microorganisms. Nearly all extracts of both chemical races showed antimicrobial activity against *Aeromonas hydrophila*, *Bacillus cereus*, *Bacillus subtilis*, *Listeria monocytogenes*, *Proteus vulgaris*, *Staphylococcus aureus*, *Streptococcus faecalis*, *Yersinia enterocolitica*, *Candida albicans*, *Candida glabrata*, *Alternaria alternata*, *Ascochyta rabiei*, *Aspergillus niger*, *Fusarium culmorum*, *Fusarium moniliforme*, *Fusarium oxysporum*, *Fusarium solani*, and *Penicillium notatum*. There was no antimicrobial activity of the extracts against *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Pseudomonas syringae*, *Salmonella typhimurium*, *Alternaria citri*, *Alternaria tenuissima*, and *Gaeumannomyces graminis*. Chloroatranorin and olivetoric acid were active against the same microorganisms with few exceptions. Physodic acid was active against about the same bacteria and yeasts and inactive against all of the filamentous fungi tested. Also no activity of atranorin against the filamentous fungi was observed.

*Key words:* *Pseudevernia furfuracea*, Antimicrobial Activity, Lichen Compounds