

ANTIMICROBIAL ACTIVITIES OF THE SECONDARY METABOLITES OF ENDOPHYTIC FUNGI ISOLATED FROM *JUNIPERUS COMMUNIS*

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The microbial endophytes are important components of the plant micro ecosystem residing in healthy internal tissues of plants asymptotically. These microorganisms play a significant role in influencing the synthesis of metabolic products in plants and they are proved to be an excellent reservoir of bioactive compounds.

The aim of the present study was to isolate the endophytic fungi from the medicinal plant *Juniperus communis* and evaluating the antimicrobial potential of these isolates. Altogether, 138 endophytic fungi were isolated from 217 cuttings of healthy twigs, roots, cones and leaves of *J. communis*. Out of 138 isolates, 80 strains were cultivated in shaken flask cultures; after the cultivation both the mycelia and ferment broth were extracted with the mixture of chloroform and methanol (4:1). The crude extracts were tested for their antimicrobial potential against six bacteria such as *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Streptomyces aureus* and *Micrococcus luteus*. Amongst 160 extracts, 78 extracts showed more than 90% inhibitory activity against a minimum of one tested bacterium. Most of them were active against *B. subtilis* (77), *Staph. aureus* (93), *Strept. aureus* (101) and *P. aeruginosa* (65) showing inhibition over 60%, whereas *E. coli* and *M. luteus* were barely inhibited. The extracts were also tested against two fungal species: *Candida albicans* and *Aspergillus niger*. Three ferment broth extracts of strains isolated from twigs of the host plant caused remarkable zone of inhibition against both fungi. The mycelial and ferment broth extract of strain J.S 29 exhibited the highest inhibition zone (~50 mm after 3 days) against *C. albicans*.

Our results highlighted that *J. communis* harbours many endophytic fungi, which have remarkable potential to produce bioactive compounds.

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