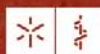


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Screening of the antimicrobial activity of wild mushrooms phenolic extracts against clinical isolates

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Antimicrobial drugs have long been used for prophylactic and therapeutic purposes; however the drug-resistant bacterial strains have been creating serious treatment problems. This situation has forced the search of new antimicrobial substances effective against pathogenic microorganisms resistant to conventional treatments. Natural resources have been tested and among them mushrooms could be an alternative. This work aimed to screen the antimicrobial activity of phenolic extracts of 13 edible mushroom species, collected in Bragança, against several clinical isolates obtained in Hospital Center of Trás-os-Montes and Alto Douro, Portugal. Microdilution method was used to determine the Minimum Inhibitory Concentration (MIC) and the Minimum Bactericidal Concentration (MBC). MIC results showed that *Russula delica* and *Fistula hepática* extracts inhibited the growth of Gram negative (*Escherichia coli*, *Pasteurella multocida*, *Morganella morganni*, isolated from urine) and Gram positive (*Staphylococcus aureus*, MRSA- isolated from wound exudates, *Enterococcus faecalis*, *Listeria monocytogenes*- isolated from blood culture, *Streptococcus agalactiae* and *Streptococcus pyogenes*- isolated from vaginal swab) bacteria. A bactericide effect of both extracts was observed in Gram positive bacteria (*L. monocytogenes*, *S. agalactiae* and *S. pyogenes*); regarding Gram negative bacteria, a total inhibition effect was observed for *P. multocida* at the highest concentration tested (20 mg/ml). *Lepista nuda* extract exhibited a bactericide effect upon *P. multocida* at 5 mg/ml, and inhibited *Proteus mirabilis* (isolated from urine) at 20 mg/ml. *Ramaria botrytus* extract did not present activity against Gram-negative bacteria; nevertheless, it showed activity against *E. faecalis*, being bactericide for *S. agalactiae* and *S. pyogenes*. Moreover, this was the extract with the highest activity against *L. monocytogenes* with MBC of 10 mg/ml. *Leucopaxillus giganteus* extract inhibited the growth of *E. coli* and *P. mirabilis*, being bactericide for *P. multocida*, *L. monocytogenes*, *S. pyogenes* and *S. agalactiae*. Among all the studied mushrooms, *Agaricus arvensis* seemed to present the lowest antimicrobial activity against all the tested bacteria. The extracts are chemically characterized and the individual/combined phenolic compounds will be submitted to antimicrobial assays in order to identify compounds responsible for the mushrooms bioactivity.

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