



Conference Abstract

Accessing bioactive potential of cave bacterial extracts

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Abstract

Recently, there has been an increasing demand for new molecules with bioactivity as a result of the increasing number of multi drug resistant bacteria and also of the need to find treatment for various diseases. Thus, to fill this urging need there has been a great investment in developing new techniques to speed up and increase the possibility of finding new molecules with therapeutic potential. Typically, the first stage of drug discovery process relies on *in vitro* assays and conventional high-throughput LC-MS-MS approaches. This combined with unique extreme environments, as a source of new molecules, has proved to be a good approach to enlarge natural product drug discovery. Considering the present demand for new bioactive molecules, together with the fact that cave microorganisms are already considered an important, yet largely unexplored source, our study aimed at assessing the bioactive potential of cave bacterial extracts, namely its antimicrobial and antitumoral potential. From six soil samples collected in the Cerâmica cave, at the Sicó karst massif, centre of Portugal, a total of 409 isolates were obtained. After a primary screening with the cross-streak method, 91 isolates showed antagonistic activity against four pathogenic agents (*Escherichia coli*, *Pseudomonas aeruginosa*, *Aeromonas salmonicida* and *Bacillus aquimaris*). Afterwards the secondary screening was carried out with the three isolates that presented higher antimicrobial activity. For the secondary screening, cell-free supernatants (CFS) were tested against eight pathogenic agents (*Escherichia coli*, *Pseudomonas aeruginosa*, *Aeromonas salmonicida*, *Bacillus cereus*, *Enterococcus faecalis*, *Klebsiella pneumoniae*, *Salmonella typhimurium* and

Staphylococcus aureus). The chemical analysis of the CFS is discussed, as well as the results from the *in vitro* tests with human cell lines to evaluate its effects on cell morphology, viability and proliferation (Suppl. material 1).

Keywords

bacteria; cave; antimicrobial activity

Presenting author

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Hosting institution

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Supplementary material

Suppl. material 1: Accessing bioactive potential of cave bacterial extracts [doi](#)

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