TITLE: IDENTIFICATION OF FUNGI PRESENT IN SULFIDE ANTARCTIC SOILS

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The Antarctic continent stands out for having low temperatures, low availability of nutrients, intense solar radiation and strong winds. It has soils with different physicochemical characteristics, among them, the so-called "*Yellow Points*" or sulfide soils, formed by sulphide outcrops, with acid and oligotrophic character. However, despite the extreme conditions, these soils have been shown to be important microhabitats of microbial communities for both ecological and biotechnological studies. Among the various groups of microorganisms, fungi attract attention for their high adaptive capacity, tolerating extreme conditions and colonizing the varied habitats and substrates, including Antarctic sulfide soils. The composition of the fungi community present in this soil is still unknown, so this study sought the taxonomic and morphological identification of filamentous fungi and yeasts from sulfide soil samples from five different "*Yellow Points*" on King George Island, Antarctic Peninsula. Sample processing was performed at 15 ° C in three YM, DG18, and DRBC media. For molecular identification ribosomal DNA (rDNA) was extracted and used for amplification of the ITS region using primer ITS4. From a total of 80 isolated filamentous fungi, up to now 33 were identified belonging to 13 species: *Geomyces destructans*, *Leptobacillium leptobactrum*, *Mortierella amoeboidea*, *M. fimbricystis*, *M. parvispora*, *Penicillium camerunense*, *P. commune*, *P. italicum*, *P. melanoconidium*, *P. rubens*, *P. tardochrysogenum*, *Pseudogymnoascus roseus*, *Rhizoscyphus ericae*. Twelve yeasts were also isolated and five species were identified: *Candida davisiana*, *Leucosporidium escudeiro*, *Leucosporidium creatinivorum*, *Leocosporidium yakuticum*, *Rhodotorula mucilaginosa*. Species of *Pseudogymnoascus*, *Geomyces* and *Mortierella* tend to be psychrophilic and have the ability to colonize various substrates including sulfide soils. Fungi are commonly used in biotechnological applications and genera such as *Penicillium* have already been reported as capable of producing organic acids such as oxalic acid, citric acid and maleic acid that selectively biocatalise metals and can be used in bioleaching processes of metals of industrial interest. The identification of filamentous fungi and yeasts present in Antarctic soils allows to increase the knowledge about the mycobiota in Antarctica, as well as to evaluate the potential of the fungi in bioassay tests for future biotechnological and industrial applications.

Keywords: Antartic, sulfide soil, fungi, identification

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