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Phytochemical characterization of wild edible Boletus sp. from Northeast Portugal

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Our research has been focused on the documentation of nutritional composition and nutraceutical potential of wild mushrooms, making the information available for a better management and conservation of these species and related habitats. In the present work, the chemical composition and bioactivity of three wild edible Boletus sp. (Boletus aereus, Boletus edulis, Boletus reticulatus) from Northeast Portugal were evaluated, in order to valorise these species as sources of important phytochemicals. The macronutrient profile in general revealed that they are rich sources of protein and carbohydrates, having low amounts of fat. The analysis of fatty acid composition by GC/FID allowed the quantification of twenty six fatty acids. Unsaturated fatty acids and, in particular, oleic and linoleic acids, were predominant. Mannitol and trehalose were the most abundant sugars, determined by HPLC/RI. Boletus aereus revealed the highest antioxidant activity, measured by radical scavenging capacity, reducing power and inhibition of lipid peroxidation assays. Furthermore, these results are in agreement with the highest content in phenolic compounds (measured by HPLC/DAD). Boletus reticulates presented the highest tocopherols composition (HPLC-fluorescence) also presenting a high antioxidant capacity. Overall, this study increases the proportion of investigated mushrooms and contributes to the establishment of the nutritional/nutraceutical potential of wild mushrooms.

Keywords: Phytochemical, nutraceutical, antioxidant, tocopherols