

Towards the Integral Waste Valorization of Three Relevant Mushrooms

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Abstract

Mushroom consumption has increased in recent years with a consequent industrialisation to obtain fungal biomass, fact which has derived in an increased generation of mushroom wastes. For this reason, there is an opportunity to look beyond fresh consumption to the recovery and use of fungal waste. In this work, three mushroom species relevant for their great fresh consumption volume and for their reported high bioactive value, specifically *Grifola frondosa*, *Lentinula edodes* and *Pleurotus ostreatus* were deeply explored to study their potential valorization. A series of sequential extractions were carried out to obtain partially purified fractions of different bioactive compounds, specifically β -glucans, which are mainly responsible for the high bioactive value of the mushrooms. Their yields and composition were studied to cost-efficiently optimize the processes for the production of extracts rich in β -glucans, protein, polyphenols, etc., with potential use as food additives and nutraceuticals. Possible simplification strategies are discussed to obtain multifunctional less purified fractions.

Keywords: mushroom, β -glucans, bioactive compounds