

30/07 | 17h50

PARALELL SESSION III - T4.P2 - LOOKING FOR SUSTAINABLE SOLUTIONS

[Room 2.2.14](#) | [Topic 4 - Eco-solutions and bio-economy \(4\)](#)

OC-064 - (EEF2019-13945) - ECO-SUSTAINABLE RECOVERY OF ERGOSTEROL-RICH BIOACTIVE EXTRACTS FROM PLEUROTUS ERYNGII (DC.) QUÉL.

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Pleurotus eryngii (DC.) QuéL. is widely recognized for its organoleptic qualities and health benefits, being commercially produced in great extent in Asia, Europe, and North America [1]. Depending on the size of the mushroom industry, an expressive volume (20 to 35% in weight of fresh mushrooms) of bio-residues are often discarded, even though their content in biomolecules is not necessarily compromised [2]. Hence, there are major opportunities to turn these outcomes into high-value products through the recovery of bioactive compounds, such as ergosterol rich extracts. Ergosterol, one of the main sterols in mushrooms, has been reported to be the major contributor in *P. eryngii* bio-functionalities [2]. In the present work, *P. eryngii* bio-residues (PER) and intact mushrooms (PEG) were compared for their ergosterol content. Response Surface Methodology (RSM) was applied using heat-assisted extraction methodology. The combined effect of time (10-150 min) and temperature (30-90°C) was performed using a circumscribed central composite design (CCCD), and the response criteria were extraction yield and ergosterol content using HPLC-UV. The global optimum conditions predicted by the model were 112.7 min, 90°C, and 150 min, 61.8°C for PER and PEG, respectively. Under these conditions, 190.14 and 360.58 mg of ergosterol per 100 g of dry weight sample were recovered from PER and PEG, correspondingly. Even though *P. eryngii* bio-residues presented up to 53% of PEG ergosterol yield, PER offers sustainable and economic advantages. These results confirm the enormous potential of the under-exploited *P. eryngii* bio-residues as a valuable source of ergosterol-rich extracts.