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## Nano Capsulated Polyphenol Extracted from Oyster Mushroom (*Pleurotus ostreatus*), Characterization and Stability Evaluation

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**Abstract:** The development of serious diseases i.e. Breast, colon and prostate cancers in human population at large is affected by many factors i.e. food habits, chemical substances and stress. Polyphenols as secondary metabolites in specific plants could be extracted and used as antioxidant, anti-atherogenic, anti-diabetic, anti-cancer, anti-viral, and anti-inflammatory properties. These compounds could donate electron to free radical through different mechanism and thus affect oxidation and microbial growth.

The extraction kinetics of polyphenol Oyster mushroom (*pleurotus ostreatus*) by Supercritical CO<sub>2</sub> Fluid extraction at (100 °C and 400 bar) was evaluated. Total phenol extracts were determined using Folin-Ciocalteu reagents. SFE was found to produce higher phenol recoveries than traditional methods. The production of natural nanopolyphenols by using ultrasonic (mechanical process) aside with encapsulation could be used in treatment of some serial diseases such as cancer, (increase its capacity to induce apoptosis in cancerous cell by modulating cell signaling cascades).

**Key words:** Nanotechnology; SFE; characterization; stability; cell-line.

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