



E503

Effect of alternative pre-treatments and fermentation on quality characteristics of oyster mushrooms

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Besides their unique taste and texture, mushrooms are a promising source of important nutrients such as dietary fiber, amino acids, minerals and vitamins. Fresh mushrooms, however, have a limited shelf life of up to three days at ambient temperature due to their high water content, respiration rate, and enzyme activity. Different methods have been used to preserve mushrooms for a prolonged period, such as drying, cooking, frying, irradiation and fermentation. The purpose of this study is to evaluate the effect of different pre-treatments and fermentation on physicochemical, textural, and microbial properties of oyster mushrooms. The fresh oyster mushroom was considered as control and 6 alternative pre-treatment methods were used as; blanching in water, steaming, oven cooking, microwave, High Hydrostatic Pressure and Ultra Violet Light treatment. Moisture, pH, yield, color, texture and microbiological analyses were performed on each pre-treatment group before and after fermentation. The results revealed that, the quality attributes of oyster mushrooms were significantly affected before and after fermentation by the use of different pre-treatments.

E504

THE EFFECTIVENESS OF SELECTED SOLVENTS AND PARAMETERS FOR EXTRACTION OF POLYPHENOLS FROM CHOKEBERRY POMACE

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Chokeberry (*Aronia melanocarpa* (Michx)) pomace is rich in valuable compounds with potential use as natural food additives, due to their antioxidant and colour effects. However, the yield of these compounds depends on extraction solvents and conditions. Therefore, this study evaluated the effects of extraction solvents (50% ethanol, 50% glycerol, and 100% water, all acidified with 1% citric acid) and extractions conditions (40, 50, and 60°C for 60 and 120 minutes, ultrasound 15 and 30 minutes) on total anthocyanins (TA), total phenolic contents (TPC) and antioxidant capacity in lyophilized chokeberry pomace. The results indicated that ethanol (50%) extraction yielded significantly ($P < 0.05$) higher results compared to glycerol (50%), and water (100%) for TA (1803 ± 207 ; 1391 ± 163 ; 872 ± 39 mg/100g DW, respectively), and TPC (10538 ± 1003 ; 7887 ± 556 ; 2532 ± 250 mg GA/100g DW) at 50°C for 60 minutes in the water-bath and 30 minutes ultrasound. Antioxidant capacity results did not differ significantly between ethanol (50%) and glycerol (50%), however, water (100%) yielded significantly ($P < 0.05$) lower results. This study suggests a combination of 50:50 (v/v) ethanol-water acidified with 1% citric acid, 50°C water-bath extraction for either 60 or 120 minutes, assisted by ultrasound for either 15- or 30-minutes duration, for efficient polyphenols extraction from chokeberry pomace.

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