



INVESTIGATION OF LOW TEMPERATURE HEAT TREATMENT (SOUS VIDE) OF WHITE BUTTON MUSHROOM (*AGARICUS BISPORUS*)

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ABSTRACT

Heat treatment of food at low temperature for extended durations is a well-established technology in food production. The essence of sous vide technology lies in the heat treatment of food within sealed, preferably vacuum-sealed, heat-resistant plastic bags at low temperatures over prolonged periods, sometimes ranging from 50 to 70 hours, significantly lower than traditional cooking temperatures. The sous vide method of preparing mushrooms is recognized for enhancing flavour and aroma profiles in ready meals. The effects of heat treatment on mushrooms have received limited attention in recent years. In our experiments, we investigated the impact of temperature and other conditions on the Maillard reaction products in both white button and exotic mushrooms. We examined alterations in protein, polysaccharide, and vitamin content, identifying primary products and bioactive components resulting from low-temperature transformations. During heat treatment, we observed the production of a concentrated aqueous extract, rich in aromas and bioactive components, in liquid form. Optimization of its quantity is achieved by modifying conditions. Additionally, we produced mushroom powders with elevated vitamin D content through UV irradiation of the high-protein solid material generated during the browning process.

Keywords: heat treatment, mushroom, technology

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