

Assessing the Impact of Gamma Irradiation on the Microbial Characteristics and Overall Protein Content of Dried *Agaricus bisporus* Edible Mushrooms

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Abstract

One of the extensively cultivated mushrooms in Macedonia is the *Agaricus bisporus* species. Nonetheless, the considerable susceptibility of mushrooms to decay poses a challenge to the advancement of this sector. Microbial contamination stands out as a significant issue in the realm of food preservation.

The presence of various microorganisms in food besides leading to disruption of organoleptic and nutritional properties, can directly threaten the health of the consumer. Treatment by irradiation emerges as a possible conservation technique that has been tested successfully in several food products. The purpose of this research was to investigate the effects of different doses of ionizing radiation on the microbial quality and the protein content of the dried mushrooms of the common cultivated species *Agaricus bisporus*.

Samples from *Agaricus bisporus* were gamma irradiated with doses of: 0.5 kGy, 1 kGy, 3 kGy, 5 kGy, 10 kGy, and 12 kGy. Microbiological analyses were performed with standard plate count method. Protein content was determined by Kjeldahl method.

Applied irradiation resulted in a decreasing number of the total cell count of microbial cells with increasing the radiation dose. Total protein content ranged from 25,05 % - 29,36 %. Analyses of total protein content revealed an increase of proteins in irradiated mushrooms compared with the unirradiated control sample.

The obtained data show that gamma irradiation might provide a useful alternative to ensure the quality of the *Agaricus bisporus* edible mushrooms.

References

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