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COMPARATIVE EVALUATION OF NUTRIENT RETENTION, ORGANOLEPTIC AND TECHNOLOGICAL INDICATORS DURING DRYING OF CULTIVATED MUSHROOMS

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Abstract. The present study comparatively evaluated the efficiency of processing cultivated mushrooms belonging to *Pleurotus ostreatus* and *Agaricus* species using convective, infrared, and combined drying methods. The research results demonstrated that the combined drying method ensured the highest retention of nutrients, better preservation of organoleptic characteristics, and improvement of technological quality indicators.

Keywords: cultivated mushrooms, *Pleurotus ostreatus*, *Agaricus*, drying, combined drying, nutrients, organoleptic evaluation.

Cultivated mushrooms possess high biological and nutritional value, containing proteins, vitamins, minerals, and biologically active compounds. However, fresh mushrooms deteriorate rapidly due to their high moisture content. Therefore, drying is considered one of the most effective processing methods for extending their shelf life.

The objective of this study was to comparatively assess nutrient retention, organoleptic properties, and technological quality indicators of *Pleurotus ostreatus* and *Agaricus* mushrooms processed using different drying methods.

Materials and Methods. The research was conducted during 2023–2025. Mushroom samples were processed using convective, infrared, and combined drying methods. The contents of protein, fat, carbohydrates, and dietary fiber in dried products were determined. Organoleptic evaluation was carried out using a five-point scale. In addition, moisture content, water activity, rehydration coefficient, and product yield were evaluated.

Table 1

Nutrient composition of dried cultivated mushrooms depending on drying methods

Drying method	Protein,%	Fat,%	Carbohydrates,%	Dietary fiber,%
Pleurotus ostreatus				
Convective	25.8	2.8	54.6	10.2
Infrared	27.6	3.1	56.8	10.9
Combined	29.5	3.5	58.8	11.7
Agaricus				
Convective	24.0	2.5	51.4	9.6
Infrared	25.9	2.9	53.7	10.3
Combined	27.8	3.2	56.0	11.0

The results revealed that the highest level of nutrient retention was achieved through the combined drying method. The protein content reached 29.5% in *Pleurotus ostreatus* and 27.8% in *Agaricus*. According to the organoleptic evaluation, the overall scores obtained by the combined drying method were 4.65 and 4.55 points, respectively.

The combined drying method also showed superiority in terms of technological quality indicators. The moisture content of the products decreased to 10.4–10.9%, while rehydration capacity and product yield increased. The overall quality index reached 0.92 for *Pleurotus ostreatus* and 0.90 for *Agaricus*.

The findings indicate that the combined drying method is the most effective technology for drying cultivated mushrooms. This method ensures better preservation of nutrients, improved organoleptic quality, and enhanced technological characteristics, and can therefore be recommended for the production of high-quality dried mushroom products.

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