

NEAR INFRARED SPECTROSCOPY INVESTIGATION OF WHITE BUTTON MUSHROOM PRESERVED BY COMBINED TREATMENTS

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Abstract

Mushrooms are very valuable raw materials. That's why a lot of preserving methods were used for them during the last decades. The traditional is the heat treatment, but it can cause a great loss in the valuable components of the raw materials. Due to this fact and the new claim of the consumers, the minimal processing technologies become more important in the preservation of food.

For preserving the white button mushroom we used high hydrostatic pressure (HHP) and sous-vide technology. The parameters were 55°C, 75°C, 300MPa, 600MPa and their combination. After lyophilization, the samples were examined with Fourier Transform Near Infrared Spectroscopy (FT-NIR). For evaluating the data we used Canonic Discriminant Analysis (CDA). According to the results of the CDA, the samples made with the two preserving method are not in a different half of the discriminant space, but they are getting farther off the raw sample. Probably, the less change is caused by the single heat treatment, because these samples are the closest to the raw one. Thanks to this fact, these samples are also farther off those that was made with combined treatments than the samples made only with pressure treatment. The treatment order does not have an important role, because the group of the samples are very close to each other. However, in the case of the smaller dose (55°C/300MPa, 300MPa/55°) the groups are slightly farther off each other.

To sum up, all the treated samples are different from the raw one, so the change is demonstrable. The less change is caused by the heat treatment, and the effect of the single pressure treatments is similar to the combined ones. In the latter case the groups of the sample are very close to each other, and if we use the bigger dose (75°/600MPa, 600MPa/75°C) we get products with almost the same properties.

Key words: mushroom, HHP, sous-vide, NIR

Acknowledgement:



„SUPPORTED BY THE ÚNKP-17-2 NEW NATIONAL EXCELLENCE PROGRAM OF THE MINISTRY OF HUMAN CAPACITIES”