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SAFETY OF MUSHROOMS ON CHOLESTEROL

Consumption of organic food that contains a lot of protein is an urgent problem that can be solved by cultivated mushrooms. In Ukraine fungi consume is in 4.5 times less than in European countries. One of the constraining factors, except production, is the establishing of parameters of safety, since fungi during storage can accumulate substances that affect health, such as cholesterol, which causes atherosclerosis [1, p. 185; 2, p. 45], and the products of its metabolism have carcinogenic activity [3, p. 67].

Earlier conducted research on the content of nitrates and nitrosamines mushrooms, which cause the formation of tumors, as well as toxic substances that lead to poisoning. Established their content in mushrooms during storage.

Cholesterol investigated in cultivated mushrooms with a closed cap with diameter 40 mm brown and white strains (company «Sylvan») during storage temperature $2 \pm 2^{\circ}\text{C}$ and $20 \pm 2^{\circ}\text{C}$, the indicator set on biochemical analyzer Vitalab Flexor enzymatically using appropriate Reagents and conditions (wavelength - 546 nm, the optical path – 1 cm) [4, p. 25].

According to the research, the mushrooms with brown strain contain cholesterol less than white, as at the beginning and during the period of storage (table), due to the biological properties of strains.

During the storing mushrooms with white and brown strains revealed their hats (respectively, decreasing commodity grade), due this respiration rate is increasing, spore-forming plate becoming dark: with pale pink turn pink, then light beige, brown and dark brown.

Table

Cholesterol level change in mushrooms with brown and white strains during storage, mg/100 g dry weight

Shelf life, days	Storage temperature, °C			
	2±		20±	
	M±	% from the previous	M±	% from the previous
Mushrooms brown strain				
In the beginning	74,7±	-	74,7±	-
1	69,8±	-6,6	124,0±	+66,0
2	65,6±	-6,0	145,1±	+17,0
3	78,1±	+19,1	183,2±	+26,2
4	90,5±	+15,8	-	-
5	99,1±	+9,5	-	-
6	116,9±	+11,9	-	-
Mushrooms white strain				
In the beginning	173,2±	-	173,2±	-
1	145,1±	-16,2	292,7±	+69,0
2	118,2±	-18,5	355,0±	+21,3
3	89,1±	-24,6	433,5±	+22,1
4	89,8±	+0,8	-	-
5	113,1±	+25,9	-	-
6	125,1±	+10,6	-	-

Note: M – the average rate for the five repetitions; m – mean error of average.

During the storing cholesterol level of mushrooms varies: in the first period it decreases (with brown strains- for 2 days, with white - 3-4 days) and then it is rising that is clearly seen at low temperature storage. High activates biochemical processes, and therefore an increase of cholesterol level content in mushrooms from the beginning of storage. Also was noted that cholesterol level of white button mushrooms at the end of storage (cap disclosed plate brown) is higher than of brown and low temperature slows the process and value of the index is lower than at the beginning. Increased cholesterol level in mushrooms, as shown by previous studies may indicate a violation of the structural stability of globulins, and thus the aging of fungi in the development and storage.

The low positive temperature is not conducive to a positive and accumulation of

nitrites, nitrosamines and toxic substances. It is shown that the juice of fresh mushrooms destroy nitrosamines.

Thus, cholesterol aging mushrooms increases, the number of brown mushrooms strains lower than in white, for slowing the increase cholesterol level mushrooms should be stored at low positive temperatures.

References

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