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Antimicrobial activity of the phytonutrients, implemented into the formulation of the wheat bread

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Abstract

The studies were conducted on an antimicrobial activity of the phytonutrients, entered in the formula of the wheat bread. As additives are used the water extracts of sage leaves and the fruits of the mountain ash and also a rowan juice. The antimicrobial activity of applied additives was determined by the method of disks and of the resistance of the finished product to damage with its natural and artificial microbial content. It was found that the best effectiveness against mold spores and the causative agent of potato disease of bread had an infusion of the sage and the rowan juice. Antimicrobial activity is determined by the chemical composition of the applied drug raw material. The qualitative identification and the determination of the amount of biologically active substances in the additives was carried out. The highest content of saponins, anthocyanins, flavonoids and tannins was found in water extracts of the sage and the rowan juice. The rowan juice varied by a high content of the organic acids and increased antioxidant activity compared to water extracts. The amount of the tannins in the infusion of the sage was 2.1 and 2.6 times higher than their content in the juice and decoction of the fruits of the mountain ash, respectively. The amount of flavonoids in the phytonutrients was from 0.8 to 1.1 %, depending on the applied plant raw material. On the basis of the experimental data obtained, it was concluded that the use of the infusion of the sage and rowan juice in the wheat bread technology is promising not only to increase the biological value and physicochemical properties of the finished product, but also to increase its antimicrobial resistance and prolong the shelf life of it.

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