

Research Of The Production Process Of Cereal-Based Snacks For Soldiers

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Soldiers have strong physical and neuro-psychological stress, so properly organized nutrition is one of the most important values for their health, endurance and high combat readiness. Therefore we have developed crunches with high food and biological values enriched rice and pea flakes on the basis of theoretical and experimental studies. We have chosen rice and pea flakes because they have valuable chemical composition.

This paper is dedicated to the investigation of frying influence on the changes of chemical composition of crunches. The optimum mode of frying of products has been determined: temperature (140 ± 5) °C, processing time 20 minutes. It was proved that this frying temperature does not lead to the thermal destruction of the products.

We tested the impact of frying on the carbohydrates substances changes of crunches. The starch losses during frying of products are 6.0 ± 0.2 % of dry matter, reducing substances – 0.5 ± 0.2 % of dry matter, cellulose – 0.3 ± 0.1 % of dry matter. The results show the increase of the dextrins content (7.5 ± 0.2 % of dry matter). High temperature and the presence of moisture contribute to the starch hydrolysis, which is followed by break of covalent bonds and the formation of dextrins. The cellulose changes are connected with its thermal destruction.

Also the obtained experimental issues show the small decrease of the mineral substances content (2.3 ± 0.3 % of dry matter) during frying of crunches.

As a result, studies have found that after frying the protein content is reduced by 3.5 ± 0.2 % of dry matter. Mass fraction of amino nitrogen decreased slightly (by 0,4 mg % of dry matter). The data obtained from the analysis describing the overall result of passing process of denaturation of proteins during thermal treatment of products.

After analyzing the results, we can make a conclusion about a slightly decreasing the food value of products during the frying. The obtained scientific results can be useful and applied in technologies of food products on the basis of grain raw materials, including for soldiers.

KEY WORDS: crunches, pea flakes, rice flakes, frying.

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