

Calculation of Optimal Selexen Dosage to Enrich Bakery Products with Selenium

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ABSTRACT

It is possible to solve selenium (Se) deficiency among the population by using bread enriched with selenium; the goal of this study was to calculate the optimal dosage of selexen for this purpose. It was established for the first time that selenium losses during the production of bakery products using pre-ferment and accelerated methods are within 45-55% of the applied dosage. One day after baking, Se losses in unpackaged articles obtained by the accelerated method are equal to 2-24%, and those obtained through pre-ferment - 2-28%. With an increase in the initial dosage of selenium, the percentage of loss decreases. With 50 and 100 $\mu\text{g } 100 \text{ g}^{-1}$ of Se in packaged products obtained from pre-ferment, the content of the microelement does not change on the third day of storage; with other dosages of selenium, the losses are 9-19%; in packaged products obtained by the accelerated method, the Se losses are from 4 to 24% with the highest trace element retained at the initial dosages of 50 and 100 $\mu\text{g } 100 \text{ g}^{-1}$. Our recommendations are: in the production of bakery products without packaging - the accelerated production method for the introduction of 174 $\mu\text{g } 100 \text{ g}^{-1}$ or the pre-ferment method for 220 $\mu\text{g } 100 \text{ g}^{-1}$; in the production of packaged goods - the pre-ferment production method for 174 $\mu\text{g } 100 \text{ g}^{-1}$ selenium or the accelerated production method for 220 $\mu\text{g } 100 \text{ g}^{-1}$.

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