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THE KINETICS OF CHANGES IN THE QUALITY OF FROST DAMAGED SUGAR BEET

ABSTRACT

The aim of this study was to determine the kinetics of changes in the technical quality of frost damaged sugar beet with particular emphasis on the content of dextran, glucose, fructose, acetic acid and lactic acid. The frozen and no frozen sugar beets were stored at constant temperatures: 4°C, 12°C and 20°C during 100 days.

In our research the greatest deterioration in the quality of sugar beet occurred in frost damaged beets. These changes always increased with increasing storage temperature. In the case of beets damaged by frost, cell juice is flowing out and it creates favorable conditions for the growth of microorganisms and formation of harmful metabolites such as dextran or organic acids.

The studies carried out show a significant deterioration in the quality of sugar beets as a result of damage of the beets caused by frost. Hence, it is of particular importance to take care to preserve the good conditions during storage to prevent the formation of large amounts of dextran.

The present work shows that frost and thawing of beets have a great impact on their quality. As a result of defrosting during storage, there is a significant increase of undesirable compounds which adversely affect the technological process. In frost damaged beets changes occur more intensely compared to normal healthy beets. Apart from the length of the storage, the temperature value in the prism has a major influence on the formation of undesirable substances such as dextran and lactic and acetic acids.
