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Czech J. Food Sci.

M. Voldřich, I. Horsáková, M.

Čerovský, H. Čížková, H. Opatová: Factors Affecting the Softening of Pickled Pasteurised Cucumbers

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During the last three seasons the specific softening of pickled cucumbers was observed. The defective samples were analysed, but no microbial contamination was confirmed and no residual enzyme activity as well. The hypothesis of residual activity of microbial pectinases and cellulases as the most probable softening cause was proposed. The cellulolytic and pectolytic activities of nineteen strains of moulds and yeasts isolated from the samples of soils, cucumbers and cucumber plants rests were compared. The inactivation parameters (D and z values) of pectolytic enzymes of the most active strains were determined. The inhibitory effect of Ca2+ addition was evaluated within the model

experiments. The residual enzyme activities were confirmed as the main cause of the defect, together with other factors such as the characteristic composition of microbial contamination, the stress or other damage of the cucumbers during the postharvest manipulation (chilling injury, humidity stress, etc.), microbial contamination of cucumbers before processing, conditions of washing, heat treatment parameters, etc. The practical recommendations for the prevention of the defect were formulated.

Keywords:
cucumbers; effect of Ca2+; softening of sterilised vegetables; cellulolytic activity; pectolytic activity; mould

[fulltext]