

Title Modified and controlled atmospheres and their influence on disorder prevalence of Belarusian apple fruit during long time storage

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Citation Abstracts, 10th International Controlled & Modified Atmosphere Research Conference, 4-7 April 2009, Antalya, Turkey. 80 pages.

Keyword Modified atmosphere; controlled atmosphere; apple

Abstract

The influence of different gas atmospheres on the prevalence of infectious diseases and physiological disorders on Belarusian apple fruit (Alesya, Verbnoe, Charovnitza) during long time storage was studied in 2005-2008.

During storage period of apple fruits under conditions of modified and controlled atmosphere the prevalence of wilting decreased by 12.0-29.0%, and natural loss by 2.0-9.7%

The positive effect of the modified atmosphere (MA) can be explained by the fact that the container package is practically impervious to water vapour, which is escaped in the result of fetal respiration, and as consequence a high humidity of the atmosphere is set, which helps decrease loss in weight and the prevalence of wilting. And the controlled atmosphere (CA) makes vital processes of products and preserving of nutrients and vitamins less intensive. Such fruits are noted for their freshness, better shelf life and consistency, and palatability traits as compared to normal atmosphere storage (NA).

As a result of the statistical analysis on the basis of Duncan multiple range test (05) it was found out that floristic composition and the degree of infectious diseases devilmnt on the variety, as well as on the storage atmosphere. Product loss from Gleoporium and Monilia under NA conditions depening on the variety constituted up to 159kg/t, under MA-up to 159 109 kg/t under CA-up to 99 kg/t. However, preharvest conditions may also influence the development of the infectious disease as representatives of Monilia, Gloeosporium, Alternaria, Venturia, Fusarium, Nectria, Phytophthora, Botrytis infect fruits directly in the garden.

When studying product losses of the varieties under consideration taking into account the used storage methods, the best choice is CA (4% O₂, 4% CO₂)