



4th International Conference

“Effects of Pre- and Post-harvest Factors
on Health Promoting Components and Quality
of Horticultural Commodities”

June 16-18, 2019

Skierniewice, Poland

BOOK OF ABSTRACTS



Organized by Research Institute of Horticulture



euvin
European Vegetable
Research Institutes
Network

eufrin

EFM
European
Food Marketing



OPTIMAL STORAGE TECHNOLOGIES FOR ORGANIC APPLES BASED ON QUALITY PARAMETERS

Andreea Stan, Mihaela Zugravu, Carmen Constantin, Mihai Frîncu, Aurora Dobrin, Violeta Alexandra Ion, Andrei Moț, Andrei Petre, Roxana Ciceoi, Ioana Bezdadea-Cătuneanu, Liliana Bădulescu

Research Center for Studies of Food Quality and Agricultural Products, University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Boulevard, Bucharest, Romania
e-mail: andreea_stan88@yahoo.com

Nowadays, the consumer demand for organic fresh fruits with better nutritional quality and the market pressure for a prolonged shelf life are growing and for this reason the improved storage conditions and technologies are important and becomes highly relevant. The controlled atmosphere represent an efficient technology used for fruits and vegetables storage which is accepted also in organic system when gases like O₂, CO₂ and N₂ are used. In addition, controlled temperature and humidity enhance the benefits of long-term storage and better shelf life, especially for organic fruits. Apples represent one of the most common organic fruits which require long-term storage. Considering these, the aim of this work was to establish the optimal storage technologies for organic apples based on quality parameters. Two apple varieties like Rubinola and Topaz, grown in the experimental orchard of University of Agronomic Sciences and Veterinary Medicine of Bucharest were harvested, stored and monitored for six months. The storage technologies applied were normal atmosphere, with 1°C and 95% RH (for 2 months), combined with controlled atmosphere (for another 4 months) with 1°C, 95% RH, 3% O₂ and two different CO₂ concentrations (5%, respectively 10%). The quality parameters of apples consist in analysis of caliber, firmness, total soluble solids (TSS), dry matter content (DM%), pH, total titratable acidity (TAA), ascorbic acid content, total polyphenol and total anthocyanin content. Chromatographic separation of ascorbic acid was realised with Agilent XDB-C18 (4.6 x 50 mm, 5 μm) column. When results of ascorbic acid content from initial moment were compared with those obtained after 6 months of storage in normal conditions Rubinola variety registred a decrease with 36%, in 5% CO₂ – 59% and in 10% CO₂ – 38%. In normal condition storage the Topaz variety registred decreases with 50%, for 5% CO₂ – 80% and for 10% CO₂ – 86%. For all apple samples in all storage conditions, the total polyphenolic content registred increases during 6 months storage. In conclusion, the results presented above suggest that further studies and trials are required.

Acknowledgement

This work was supported by a grant of the Romanian Ministry of Research and Inovation, CCCDI – UEFISCDI, project number PN-III-P1-1.2-PCCDI-2017-0662, within PNCDI III.

Key words: organic, cold storage, oxygen, carbon dioxide, apples