# Green Chemistry and Sustainable Food processing

**Oral presentations**

## Organic apples – how to improve their storability

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In the years 2021-2025, the storage ability of organic apples was assessed. Fruits of following cultivars were evaluated: 'Ariwa', 'Chopin', 'Empire', 'Gala Must', 'Gala Royal', 'Golden Delicious', 'Goldstar', 'Idared', 'Jonagored', 'Muna', 'Red Jonaprince', 'Shampion' and 'Topaz'. The research was focused on the effect of post-harvest fruit treatments, inter alia, with hypochlorous acid (Bio ActiW 2000 or AgroECA), hot water (40°C, 48°C and slightly above 50°C) or carbon dioxide (30%) and the use of MAP packaging (Xtend bags) on reducing unfavourable quality changes in the fruit during storage. Apples were stored at a temperature of 2°C. Fruit weight, percentage of blush, maturity (internal ethylene concentration and starch index), skin colour, flesh firmness, titratable acidity, and total soluble solids content in apples were measured. The occurrence of storage disorders and diseases was noticed after storage and shelf life. Generally, it should be stated that for apples of all tested cultivars, the bitter rot and bull's eye rot were the most important storage diseases. The most effective method of limiting the development of those diseases was post-harvest treatment of the fruit with hot water. The optimal treatment parameters were 48°C for 2 minutes. Lowering the temperature of hot water during treatment to 40°C may not guarantee the reduction of the occurrence of the diseases. On the other hand, using the water at a temperature of 50°C (and higher) may cause skin damage. A problem that may appear, especially after treatment with hot water, is the development of blue mould (caused by *Penicillium expansum*).
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**Key words:** *Malus domestica*; organic; storage; quality; disorders; diseases; postharvest treatment