**Ethanol effects on the postharvest quality of apples**

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**Abstract**

With the rising demand of organic produced fruit, farmers are confronted with new challenges in the storage of apples. New technologies must be developed to substitute the banned chemicals, and to guarantee a supply of fresh fruit all year.

This study aims to describe the effect of ethanol application on the postharvest quality of apples and to evaluate the possible use of ethanol as an inhibitor of ripening.

In the experiment ‘Gala’ apples were treated with ascending concentrations (0 – 1000 ppm) of ethanol and stored under shelf life conditions. Daily, the respiration rate and the production of the hormone ethylene were measured to determine the effect on the ripening. After 12 days different quality tests were carried out. Although no changes in ethylene and respiration could be observed, fruits that were treated with concentrations of 300 – 700 ppm, showed a reduced activity of the enzyme ACC oxidase which takes part in the synthesis of ethylene. Apples were also less prone to decay and flesh browning, while higher concentrations resulted in a toxic effect combined with reduced firmness and increased membrane permeability.

The treatments had no effect on the total concentration of acids and sugars but on the overall composition. As a stress reaction, the apples accumulated sorbitol, formed from glucose and fructose.

Keywords: Apple; Ethanol; Ethylene; Respiration; Storage