

#### Abstract:

Chlorophyll fluorescence technique was evaluated as a possible predictive and non-destructive method to detect low-O<sub>2</sub> and/or high-CO<sub>2</sub> injuries in 'Conference' pears and 'Jonagold' apples stored in controlled atmosphere (CA). The fruits were kept at 0 °C in air, 1% CO<sub>2</sub> + 2% O<sub>2</sub> and 3% CO<sub>2</sub> + 1% O<sub>2</sub> during 5 months. Fluorescence parameters of minimal fluorescence (F<sub>o</sub>), maximal fluorescence (F<sub>m</sub>), and potential quantum yield [(F<sub>m</sub>-F<sub>o</sub>):F<sub>m</sub> also denoted as F<sub>v</sub>:F<sub>m</sub>] as well as the incidence of browning disorders were evaluated at several times during storage. No incidence of browning was observed in 'Jonagold' apples, however, they showed a decrease in F<sub>v</sub>:F<sub>m</sub> during storage time with no differences between the CA-conditions. On the other hand, 'Conference' pears kept in 3% CO<sub>2</sub> + 1% O<sub>2</sub> developed a lot of browning injuries such as core browning, flesh browning and cavities. Under this CA-condition, a pronounced decrease in the quotient F<sub>v</sub>:F<sub>m</sub> was observed already in the first 15 days of storage prior the development of browning. The present results indicate that chlorophyll fluorescence is promising as an indicator to detect browning injuries in 'Conference' pears prior their development.