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### **Nondestructive detection of low temperature induced stress on postharvest quality of kápia type sweet pepper**

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Application of low temperature cold storage induces high risk of chilling injury (CI) threatening sensitive commodities. Because sweet pepper belongs to this group of vegetables, our main objective was the nondestructive quality measurement of the popular Kápia type sweet pepper (*Capsicum annuum* L.) during its storage around and under optimal temperature. Fresh reddish-green colored samples of Kapitány F1 cultivar were stored at 2.5, 5 and 10 °C. Nondestructive texture measurements were carried out by a purpose built table-top acoustic stiffness device. Surface color and chlorophyll content related quality indices were evaluated by a Konica-Minolta CR-400 spectrophotometer, a Sintéleia FRM01F type DA-meter® and a PSI Open FluorCamFC 800-O chlorophyll fluorescence imaging system. High resolution digital pictures were captured and analyzed for possible CI defects by means of surface color values (normalized RGB, Hue and saturation). Image processing program was developed with GNU Octave (version 4.4.1). According to our preliminary results, the evaluated quality indices (DA-index®, acoustic stiffness coefficient, normalized RGB color, Hue and saturation values; F0, Fm, Fv and Fv/Fm chlorophyll fluorescence parameters) clearly represented the temperature dependent quality changes during low temperature storage subsequently followed by ambient shelf-life. Samples stored under and at 5 °C showed the chilling temperature stressed symptoms of delayed and retarded postharvest ripening, even under simulated shelf-life conditions.

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### **Nondestructive quality measurement of three different pear cultivars**

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High quality fruits of autumn pear cultivars are really preferred by consumers. Pear cultivars are characterized by their internal and external features, but they are sensitive to negative overall quality changes among improper storage or marketing conditions. Freshly harvested samples of three pear cultivars (*Pyrus communis* L. cv. Papp, cv. Uta and cv. Vilmos) were stored at 5 °C (almost 6 weeks and additional shelf-life) and 22 °C (shelf-life), respectively. Nondestructive texture measurements were carried out by the AWETA AFS Desktop System. Maturity, colour and chlorophyll content related changes were followed by a Sintéleia FRM01F DA-meter® and a purpose built machine vision system. Positive effects of cold storage and high relative humidity were obvious concerning cold stored Papp and Vilmos cultivars' impact and acoustic firmness providing about 25 and 50 % higher overall textural quality by the end of cold storage, respectively. Uta, Papp and Vilmos samples stored at 22 °C suffered cultivar dependent rapid textural, colour and overall quality degradation. Papp and Vilmos samples stored at 5 °C suffered the same rapid negative changes after removal to shelf-life conditions as initially at 22 °C stored ones. Considering the applied quality indices (DA-index®, acoustic and impact firmness coefficient, normalized RGB colour values, Hue and saturation values) the quality changes of the pear cultivars were objectively followed during storage.