Title Changes of quality parameters in watermelon during storage

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Abstract

Watermelons are exclusively fresh consumed, and controlled atmosphere storage does not offer any benefits to watermelon quality. Thus, it was of great importance to investigate the physicochemical changes that occur in the fruit during storage under most usual conditions. Watermelon fruits were harvested in 2004, at the mature stage and stored at 20°C and 85% R.H. for 7 and 14 days. At the beginning and at each storing interval, fruits were weighed, and flesh samples were taken for determination of the pH-value, content of ashes, total solids, soluble solids, as well as total and reducible sugars. The pH value changes slightly during storage indicating the microbiological degradation of carbohydrates is negligible, and we may assume that all biochemical changes are due to enzymatic activity. Positive correlation between the weight loss and the decrease of reducible sugars was found with a highly significant correlation coefficient ($r = 0.96$, $P = 0.01\%$). After 7 days of storage the content of reducible sugars decreased for 42.5%, and in two weeks of storage for another 3.76%, with no significant difference between the first and the second week of storage ($P = 0.01\%$). After the first week of storage no statistically significant difference was found for the amount of total and soluble solids, but after the second week for both parameters a decrease of about 15% was measured. The greatest changes that can be related with the loss of sweetness occurred after the first week of storage. In the second week of storage the predominant changes related to the physical properties of watermelon (flesh firmness, crystalline structure).