Effects of harvest time and plant density on yield and quality of chinese cabbage for fresh-cut production

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Abstract

The introduction of new products for fresh-cut needs the screening of suitable cultivars and the definition of the appropriate cultivation techniques to improve the quality and to reduce the negative effects of the processing on shelf-life. The aim of this study was to evaluate the effects of harvest time (40, 50 and 60 days after the transplant) and plant density (7, 10 and 16 plants m^{-2}) on the yield and quality characteristics of two cultivars of Chinese cabbage ('Bilko' and 'Manoko') for fresh-cut production. The increase of harvest time affected the head weight and yield of the cultivars differently with a relative increase greater in 'Bilko' than 'Manoko'. Although the rise of plant density determined the reduction of head weight, more evident in 'Manoko' (48.5%), the yield of two cultivars showed a proportional increase. Also the quality characteristics of fresh-cut products were affected by the harvest time and plant density. 'Manoko' showed lower dry matter and higher nitrate content than 'Bilko' with variations more evident at the highest plant density. The late cultivar 'Bilko' showed higher CO_2 concentration inside the package than 'Manoko' especially at the 60 day harvest due to higher respiration activity of young tissue. The results of this experiment provided useful indications for a profitable use of this *Brassicacea* for fresh-cut production; however the effects of interaction between cultivation factors and the cultivars should be considered to obtain an innovative product.