

Title Texture measurement of cabbages using an acoustical vibration method
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Abstract

Textures of six cabbage cultivars were quantified using an acoustical vibration technique. A sample of four outer leaves of a cabbage was penetrated using a probe. The acoustical vibration signals were measured during penetration using a piezoelectric sensor. A new texture index (TI), the “energy density”, was introduced, which was determined by the integration of squared amplitudes of texture signals multiplied by a factor of a frequency band. This TI enabled evaluation of acoustical signals in the high-frequency region (>1000 Hz) more sensitively than the previously used index (“amplitude density”), which was determined by the integration of texture signal amplitudes. Significant differences in TI among the cultivars were obtained by using ANOVA, especially between a spring and a winter cabbage. We also examined cabbages that had been stored under 4 °C for 10 or 19 d. Most TI readings increased after the storage. These results provide useful information related to the shelf-life of cabbages.