Title Temporal changes in textural and taste-related characteristics of seven UK-grown Sh2 sweet corn cultivars stored under controlled atmosphere conditions

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Abstract

Sweetcorn is an important crop in the fresh vegetable market. As consumption increases, greater knowledge is required on quality parameters (viz. texture, concentration of sugars) which are intimately associated to consumer acceptability. Deterioration of the quality of sweetcorn after harvest is rapid even for sh2-types (super sweet) which tend to deaden the conversion of sugars to starch. Storage at low temperatures after harvest and/or under CA storage conditions, are essential for maintenance of important chemical and physical characteristics of super sweetcorn. The current study aimed to elucidate the temporal changes in textural and taste-related characteristics of seven super sweetcorn cvs. (viz. Bob 1, Bob 2, Bob 5, 7210, 6800, Primer Plus and Conqueror) held at 3°C and under controlled atmosphere (CA) (8kPa O_2 and 12 kPa CO_2) for 24 days.

Maximum Load (N) measured by the Kramer Shear Cell method, indicated that the changes in the texture of the cvs. followed different patterns during CA storage. Specifically, cv.6800 was ca. 1.3-fold firmer than the rest of the cvs. during the 24 days of storage. Dry matter as a proportion of fresh weight (DW/FW) was also significantly different between cvs. and tended to decline after 3 days of storage, being 6% lower at the end of the storage period as compared to initial values. On a dry weight basis, total sugar content, was significantly different between cvs. and 1.2-fold greater at day 0 than at the end of the storage period. In particular, the concentration of total sugar on a dry weight basis was significantly higher in cvs. Bob 1, Bob 5 and Bob 6. This said, when considering the results on a dry weight basis, the temporal changes in the sugar profile through storage were dependent on both genotype and storage duration.