

Title Examination of celery cultivars for premium organoleptic properties and shelf life extension
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Abstract

Introduction: A New Zealand celery company wishes to select a new celery cultivar that is firm, sweet and has a long shelf life for export to Asia. For this purpose, three new celery cultivars (888, SS-SB/A and SS-SB/B) were bred and subjected to physicochemical and sensory testing in order to identify the superior variety. **Materials and Methods:** New celery cultivars (888, SS-SB/A and SS-SB/B) were obtained locally. A standard cultivar RI was used as a control. Tests performed including texture, water content, weigh loss over time, colour, enzymatic browning, chlorophyll content, sugar level, shelf life and sensory evaluation. **Results and Discussion:** The 888 cultivar deteriorated to the greatest extent after storage at 4°C for 21 days with respect to both pithiness and rots ($p<0.05$). Greenness was highest in 888 initially, but it decreased the most after storage ($p<0.05$). In terms of shelf life, SS-SB/A and SS-SB/B were superior to RI and 888, although the cut-ends also browned the faster in the former ($p<0.05$). The new cultivars were all superior to the control, RI, and SS-SB/A was the best in terms of mass and physical size ($p<0.05$). No differences were found between the cultivars in terms of hardness, water content, weight loss over time and mean total sugar content ($1.080\pm 0.064\text{g}/100\text{g}$) ($p<0.05$). While RI and 888 were preferred by sensory panelists over SS-SB/A and SS-SB/B in the fresh state, SS-SB/B was favoured after storage at 4°C for 21 days ($p<0.05$).