

Abstract

The concentration of fructose, glucose, and sucrose was determined for onion, (*Allium cepa* L.; cvs. SS1, Buffalo and Shakespeare) bulbs grown across two different growing sites. Sugar profiles were then compared to taste-panel data as a means of determining taste preference. Scores were given for likeability, sweetness and bitter less. Significant differences ($P < 0.001$) in sugar profiles were found between each cultivar and corresponded to differences in taste preference. Fructose and then glucose were the most abundant carbohydrates found in cvs. SS1 and Buffalo. In contrast, sucrose was the most abundant sugar found in cv. Shakespeare. There was no correlation between sucrose and sweetness score. Glucose was negatively correlated with bitterness. There was a positive correlation between fructose and glucose concentration and sweetness and likeability score. Glucose concentration in cv. SS1 (ca. 240 mg g^{-1} dry weight (DW)) was 1.38- and 3.7-fold higher as compared to cvs. Buffalo and Shakespeare, respectively. Accordingly, onion cv. SS1 bulbs, which also had peak fructose at ca. 250 mg g^{-1} DW, were preferred over cvs. Buffalo and Shakespeare, respectively.