

Abstract:

When trying to create kiwifruit with new flavours, it is important to understand the consequences of changes in composition that affect flavour perception. Using low-volatile 'Hayward' fruit pulps we have altered different sugars and acids to demonstrate their significance to perception of fruit sweetness and acidity. Altering the pulp soluble solids concentration (SSC) from 11-18% demonstrated that increasing sugars reduced the perception of acidity in the pulp. Small additions of citric acid (0.3% titratable acidity) (TA) had no effect on sweetness perception at high SSC (>14%), but depressed sweetness intensity at low SSC (e.g., 11%). Total amount of sugar was important, and there was no difference in sweetness perception when sucrose, fructose, glucose and inositol were added at different ratios or alone. However, citric, malic or quinic acids caused different perceptions of acidity. At the same molar concentrations, quinic acid was perceived as more acid than malic or citric acids. Hence as TA was the same, the difference relates to perception of the base rather than H⁺ ions. A buffered solution of citric acid at the same concentration of acid did not alter fruit pH, but was perceived to make a slight but significant change in the perception of acidity. Adding Vitamin C increased perceptions of acidity and a range of flavours, including lemon and banana flavours. These results demonstrate the utility of using pulps to predict potential consumer responses to novel changes in flavour and in the creation of new value-added products.