

Characterisation of Malaysian durian (*Durio zibethinus* Murr) cultivars: relationship of phychochemical and flavour properties with sensory properties

Abstract

The physicochemical (pH, soluble solids, titratable acidity, sugars and organic acids), flavour and sensory properties of five Malaysian durian cultivars (D2, D24, MDUR78, D101 and Chuk) were studied. There were significant differences ($P < 0.05$) among the five cultivars in terms of all physicochemical characteristics tested with the exception for D2 and MDUR 78, which had similar physicochemical characteristics. Twenty two esters, 14 sulphur compounds, 7 alcohols, 3 aldehydes and 1 ketone were detected in the durian pulp of the five different cultivars using solid-phase microextraction coupled to gas chromatography-time of flight mass spectrometry. Diethyl disulphide, ethyl-n-propyl disulphide, diethyl trisulphide and ethanethiol were the predominant sulphur-containing compounds in all the cultivars. The major esters present in durian were either ethyl propanoate, ethyl-2-methyl butanoate, or propyl-2-methylbutanoate and their levels varied within cultivars. Principal component analysis applied to the data differentiated all cultivars based on 29 volatile flavour compounds exhibiting significant differences ($P < 0.05$) between cultivars. Principal components 1 and 2 explained 89% of the total variance. A strong correlation was observed between sensory properties with flavour compound and physicochemical characteristics of the fruit.

Keyword: Durian, Volatile compounds, SPME, GC-TOFMS, Physicochemical, Sensory