

Characterization of Roselle calyx from different geographical origins

ABSTRACT

Roselle (*Hibiscus sabdariffa* L.) is considered an underexploited food crop with nutritional and large scale processing potential. Roselle can be utilized as a functional food, mainly due to being rich in vitamin C, anthocyanins, other phytochemicals, and natural color. Although Roselle has been widely planted and consumed, little is known about the composition of aroma profiles. In this study, seventeen samples of dried Roselle calyx were collected from eight countries and the aroma profiles were determined by dynamic headspace sampling and GC–MS and GC-olfactometry. Furthermore, total soluble solids, pH, and color L* a* b* were determined, and sugars and acids were measured using ion chromatography. There were significant ($p < 0.05$) differences in all measured variables in physicochemical properties and non-volatile compounds. A total of 135 volatiles were identified mainly terpenes, aldehydes, esters, furans, and ketones. Thirty-seven odorants were reported as potentially important aroma compounds based on GC-olfactometry. This study provides valuable information for future commercial utilization of Roselle in the food industry.

Keyword: *Hibiscus sabdariffa* L.; Dynamic headspace sampling; Gas chromatography–mass spectrometry; Physicochemical properties; Gas chromatography-olfactometry