Equilibrium headspace analysis of volatile flavor compounds extracted from soursop (Annona muricata) using solid-phase microextraction.

ABSTRACT

The influence of headspace solid-phase microextraction (HS-SPME) variables, namely, sample concentration, salt concentration and sample amount, on the equilibrium headspace analysis of the main volatile flavor compounds released from soursop was investigated. A total of 35 volatile compounds, comprising 19 esters, six alcohols, three terpenes, two acids, two aromatics, two ketones and an aldehyde, were identified. The results indicated that all response-surface models were significantly ($p < 0.05$) fitted for 10 target volatile flavor compounds. The results further indicated that more than 65% of the variation in the equilibrium headspace concentrations of target volatile flavor compounds could be explained by the final reduced models, with high R2 values ranging from 0.658 to 0.944. Multiple optimization results showed that extraction using a 76.6% (w/w) sample concentration, 20.2% (w/w) salt and 8.2 g of blended soursop pulp was predicted to provide the highest overall equilibrium headspace concentration for the target soursop volatile flavor compounds.

Keyword: Headspace solid-phase microextraction; Equilibrium headspace analysis; Volatile flavor compounds; Soursop; Response-surface model.