

## 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  $R^2$  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.