Volatile Composition of Concentrated Aroma Extracts of Soluble Coffee Beverage Obtained by Pervaporation

H.R. BIZZO¹, A. OLIVEIRA², L.M.C. CABRAL¹, S.P. FREITAS²

¹Embrapa Food Technology, RJ, Brazil
²School of Chemistry, Universidade Federal do Rio de Janeiro, RJ, Brazil

SUMMARY

The present work aimed to evaluate the composition of coffee aroma concentrates obtained from pervaporation of an aqueous coffee extract, produced by a soluble coffee processing company. The pervaporation process essays were performed in bench scale, using a polydimethylsiloxane (PDMS) membrane, in which the effect of temperature on flux and permeate quality was evaluated. The volatile compounds were extracted by solid-phase microextraction (SPME) and analyzed by gas chromatography-mass spectrometry (GC-MS). The temperature increase in the pervaporation process has enhanced the permeate flux. The comparative analysis of the chromatographic profiles pointed out relevant differences between feed and permeate, the latter presenting a greater amount of volatile compounds having differentiated intensities. Among the compounds in permeate, 11 substances were considered very important for coffee aroma: acetaldehyde, 2-methylpropanal, 2-methylbutanal, 3-methylbutanal, 2,3-pentanediene, hexanal, 2,3-diethyl-5-methylpyrazine, 3-ethyl-2,5-dimethylpyrazine, 3,5-diethyl-3-isobutylpyrazine, 4-ethylguaiacol and guaiacol.