

Alimentos – A8

Identification of aroma constituents in pineapple juice by GC-MS and GC-olfactometry

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In a flavor study, if the aroma is the purpose of it, the identification should be focused on the odor-active volatiles. After the odoriferous compounds have been located, the identification procedure usually starts with mass spectrometric measurements and the determination of retention indices. Gas chromatography-olfactometry detection (GC-O) may be considered a biological sensor for identification of the separated components from a GC column [1], and the odor qualities determined by GC-O can serve as an additional parameter to aid in compound identification [2]. The objective of this work was to identify the volatile compounds of the pineapple juice by GC-MS and using the Osme GC-O technique as complementary data to confirmation of identification. The samples were collected in a tropical fruit juice industry in Paraíba state, in Brazil. Isolation of volatiles was performed by vacuum dynamic headspace, on Porapak Q polymer, with subsequent elution with appropriate solvent and the isolated analyzed by gas chromatography (GC). The identification was performed by GC-mass spectrometry, the determination of retention indices relative to an n-alkanes serie, and Osme GC-Olfactometry based on the aroma of each compound described by four trained judges. In the isolated of pineapple juice, it was possible to identify 45 compounds, most of them esters (27 compounds), followed by alcohols (5), aldehydes (4), ketones (4), acids (3), hydrocarbon (1) and terpene (1). Majoritary compounds were ethyl 2-methylbutanoate (described as pineapple, fruity), methyl 2-methylbutanoate (pineapple, sweet, fruity), ethyl butanoate (grass, leaf), ethyl hexanoate (pineapple), 3-methyl-1-butanol (unpleasant), 2-methyl-1-butanol (fruity), 3-hydroxy-2-butanone (plastic). GC-O technique showed to be an important tool in the identification of the aroma constituents of fruit juices.

Literature cited

- [1] Marriott, P.J.; Shellie, R.; Cornwell, C. *J. Chromatogr. A*. 936, 1-22.
- [2] Molyneux, R.J.; Schieberle, P. *J. Agric. Food Chem.* 2007, 55, 4625-4629.