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Characterization of volatile compounds profiles of hard cheeses made with different strains of *L*. *helveticus*

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Cheese flavour development is a dynamic and complex process which primarily depends on the enzymatic activities of lactic facid bacteria (LAB). The aim of the present work was to evaluate the volatile profiles of hard cheeses made with different strains of *L. helveticus* as starter culture: Two commercial strains (A and B) and two strains belonging to the collection of our Institute (C and D). The volatile fraction was analyzed by solid-phase microextraction (SPME) coupled to gas chromatography (GC). Compounds identified by FID (flame ionization detector) and MS (mass spectrometry) were grouped by chemical families (aldehydes, ketones, alcohols, acids and esters). Relative amounts of each group of volatile components were expressed as percentages of total area. A total of 33 compounds were identified. Cheeses made with strain A were characterized by a predominance of alcohols accounting for approximately 50% of the total volatiles detected. Acids and esters represented around 20%. The volatile composition of cheeses made with strain B had a high proportion of aldehydes (40% of total area). Other chemical groups such as acids, esters and ketones reached per centual values of 15% each one. A similar volatile fraction was detected in cheeses made with strains C and D. Acids constituted the largest group of aroma components (45 and 65% respectively). Aldehydes were the second important group (approx. 25%) and in the case of ketones a higher contribution was observed in cheeses C. This study shows that autochthonous strains conferred similar profiles of volatile compounds in cheeses but different from those of the commercial strains. We are studying now the impact of these autochthonous strains on the sensory characteristics of cheeses.

Biography

Facundo Cuffia has completed his Food Engineer from Universidad Nacional del Litoral (Santa Fe, Argentina) and course the last year of PhD in Chemical Technology. He is a young researcher (32 years) and he is a Professor in Food Formulation at the same University. He also has experience working with different Food Industries. He has held different management positions in the Facultad de Ingeniería Química (UNL) and is currently the Director of Student Affairs.

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