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Flavour volatile compounds developed during fermentation of a cereal based fermented food with Lactic Acid Bacteria

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The potential use of lactic acid bacteria (LAB) as probiotic microorganisms is increasingly recognised by the functional food industry as an important resource in the development of functional foods. They satisfy the demand of consumers for healthier food, giving as well the benefit of better quality products. In previous investigations the improvement of the LAB viability during their passage through the gastrointestinal tract, and the use of lactic fermentation for the development of new probiotic cereal based foods have been reported. Though, one of the attributes of the lactic acid fermentation is that it enhances the flavour, not many studies have been made in the sensorial characteristics of the new probiotic foods. In the present work the production of flavour volatile compounds by single strain cultures of Lactobacillus bacteria were analysed by gas chromatography. This analysis were carried out during the fermentation of a cereal based porridge with LAB strains isolated from human gut. A group of volatile aroma compounds that could be involved in the sensorial characteristics of the fermented product were quantified. The negative impact that the presence of certain flavour compounds can have on the flavour of the end product were also considered. Changes in a group of volatile compounds during twenty four hours of the fermentation are then analysed.