

Replacement of milk fat by a vegetable oil emulsion in symbiotic yogurts improves fatty acids profile whilst do not affects fermentation performance neither sensorial properties

Perina, Natália P.; Hirota, Claudia Y., Soares, Fabiana A. S. M., Silva, Roberta C.,
Bogsan, Cristina S. B., Oliveira, Maricê, N.

Department of Biochemical and Pharmaceutical Technology, São Paulo University, São
Paulo, Brazil

In the present study, replacement of milk fat by a vegetable oil emulsion in order to develop a new symbiotic yogurt with possible effect in suppressing appetite were studied concerning fermentation process and fatty acids profile. Four milk bases enriched or not with vegetal oil emulsion and/ or passion fruit peel powder with similar energetic content and macronutrient were formulated. Milk base prepared with milk fat without passion fruit peel powder was used as a control. Fermentation was performed at 37°C and 41°C by *Streptococcus thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus* in co-culture with probiotic bacteria until milk reached pH 4.7. The kinetic of acidification was followed by measuring the pH using the Cinac system (*Cinétique d'acidification*). Lipids were extracted from fresh milks and symbiotic yoghurts, fatty acids methyl esters (FAMES) were prepared by esterification and analyses of FAMES were carried out in a gas chromatograph. The influence of vegetable oil in sensorial properties - flavour and global impression, was also investigated by the application of two methods: hedonic scale and projective map, evaluated by 150 and 30 subjects respectively. Considering the same temperature of processing, the rate of acidification profile was not significantly influenced by the type of fat used. The fatty acid profile showed a reduction in the content of saturated fatty acids and a concomitant increase in mono and polyunsaturated fats in symbiotic yogurt containing vegetal oil emulsion. This improvement of fatty acids profile and preservation of fermentation process parameters are beneficial factors regarding nutritional aspects beyond manufacture of symbiotic yogurt. Finally, the results of sensorial attributes showed that the panellists noticed differences due to the use of the vegetable oil emulsion in the flavour and consequently in the global impression of the yogurts. However, there were no significant differences in the preference of the consumers between conventional and symbiotic yoghurts.