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ABSTRACT BOOK



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P-107 CHROMATOGRAPHIC DETERMINATION OF FATTY ACIDS PROFILES IN REGIONALLY-PRODUCED PORTUGUESE GOAT CHEESE ALONG CURING

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The biochemistry of cheese ripening involves mechanisms such as glycolysis, proteolysis and lipolysis. Fatty acids are released by the action of lipases from different sources, milk, rennet, bacteria, moulds included as secondary starters, and other exogenous lipases, during lipolysis [1]. The composition of the lipid fraction contributes positively to the flavour of cheese, for being precursors of more complex aroma compounds responsible for the characteristic “goaty flavour” of goat cheeses [2]. Goat milk is recognized by its easier digestibility, alkalinity, buffering capacity and certain therapeutic values in medicine and human nutrition [3]. A high total content of fatty acids is strongly linked to a rancid and tart off flavour in goat milk and may be considered undesirable in most cheese varieties [4]. In this sense, the purpose of the present study was to examine the composition and changes in fatty acids and saponification value of goat cheese during curing period (2, 7 and 12 months).

Goat cheese was made in industrial unit of Cachão - Mirandela (Trás-os-Montes) with raw milk *Serrana* goats' race, salt and rennet from animal origin. During the first two months, the samples were stored in a ripening chamber (9.5-11 °C and RH 75-85%). From the second month to one year, the samples were stored in a preservation chamber (10.5-12 °C and RH 75-85%). The fatty acids profile of the inner part of the cheese was analyzed by gas-chromatography coupled to flame ionization detection (GC-FID). The degree of saponification was determined both in the crust and inside the cheese by HCl titration of ethanol KOH solution of the samples.

Twenty-six fatty acids (FA) were identified and quantified in the inner part of the cheese (total fat was 45-46 g/100 g during the curing period). Saturated fatty acids (SFA) did not change up to 7 months of curing, increasing only after 12 months, being

palmitic (C16:0), stearic (C18:0), myristic (C14:0) and capric (C10:0) acids the most abundant FA in this class. Monounsaturated fatty acids (MUFA) decreased only after 12 months, and oleic acid (C18:1) was the predominant FA. In polyunsaturated fatty acids (PUFA) class, the most abundant were linoleic (C18:2) and linolenic (C18:3) acids, and followed the same tendency of MUFA. This is corroborated by an increase in the degree of saponification, either in the crust as in the inner part of the cheese, after 12 months of curing, probably related with the saturation of the fatty acids [3].

Extra-long curing can be done in cheeses produced with goat milk up to seven months of storage without changing the total fat and individual FA content.

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