Effect of processing on proteolysis and biogenic amines formation in a Portuguese traditional dry-fermented ripened sausage “Chouriço Grosso de Estremoz e Borba PGI”

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ARTICLE INFO

Article history:
Received 29 October 2008
Revised version from 11 February 2009
Accepted 21 August 2009

Keywords:
Dry-fermented ripened sausage
Proteolysis
Free amino acids
Biogenic amines

ABSTRACT

The influence of alternative drying environmental conditions on the proteolysis of a traditional Portuguese fermented sausage was evaluated, in relation to different ripening periods. Traditional sausages (batch T) had lower pH than counterparts (batch M), with differences (P < 0.05) focused at the fermentation stage. A remarkable accumulation of free amino acids (FAA) was detected in both batches along the ripening process, with batch T having higher mean levels than batch M (1795.2 mg 100 g⁻¹ DM vs. 1742 mg 100 g⁻¹ DM in S7, respectively), but with differences being significant for long ripened products. In both batches, glutamic acid became the most concentrated FAA in end products currently consumed (101.6 mg 100 g⁻¹ DM and 111.0 mg 100 g⁻¹ DM in S6; 233.8 mg 100 g⁻¹ DM and 220.9 mg 100 g⁻¹ DM in S7 from batches T and M, respectively) followed by leucine > alanine > taurine > serine > valine and > taurine > alanine > leucine > serine > valine sequences in the former product from batches T and M, respectively, and, coincidentally, the same sequence for both batches in the later (serine > leucine > alanine > proline > valine). Such effect on FAA concentrations led to a distinct (P < 0.05) expression of sweet, bitter, acidic and aged sensorial attributes between batches, in S8 and S9 products.

BA typical quantitative sequences varied between batches according to the ripening stage, with differences in S6 and S7 end products also reflecting the distinct microbial development rates and profiles observed. Overall, the total BA mean concentration was higher (P < 0.05) in products from batch T.

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