Strategies to reduce biogenic amine accumulation in traditional sausage manufacturing


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Abstract

Different strategies in the reduction of biogenic amine accumulation during the manufacture of five European traditional fermented sausages were studied concerning sausage formulation. The increase of sugar in the Italian salame abruzzese reduced the accumulation of cadaverine up to 43%. However, the addition of sugar in the French saucisson did not show a significant amine reduction. The inoculation of a decarboxylase-negative autochthonous starter culture reduced the biogenic amine accumulation in a different manner depending on the species and strain(s). The highest reduction was achieved by Lactobacillus sakei used in the Greek aeros thasou, resulting in a total putrescine reduction and a significant decrease in tyramine (62%) and histamine (71%). In Portuguese choricos cadaverine reduction was only of 45% when a single strain of Staphylococcus equorum was inoculated, whereas a single strain of L. sakei or a mixture of S. equorum yielded a 75% and 89% of reduction, respectively. In Spanish fuet, a combination of L. sakei CTC6626 plus S. xylosus CTC6013 had only a very slight effect on tyramine reduction (19%) in Spanish fuet, whereas L. sakei CTC494 plus S. xylosus CTC6013 was capable to reduce tyraminogenesis by nearly 50%, suggesting that L. sakei CTC494 was the strain responsible for the additional tyramine reduction.

Keywords: biogenic amines; fermented sausages; Lactobacillus sakei; S; staphylococcus xylosus; starters