ABSTRACT

Texture of sweetened condensed milk produced in Brazil: microscopic evaluation and determination of crystallizable lactose


Brazilian sweetened condensed milk (SCM) showed a favorable performance between the years 1996 and 2006, reaching over 50% exports of dairy products. It is important to raise awareness about the quality attributes of the Brazilian SCM. The objective of this study was to characterize and evaluate eight national commercial brands of SCM, with emphasis on microscopic evaluation of lactose crystals larger than 16µm, a texture defect known as grittiness. Each brand was analyzed for the attributes size and number of lactose crystals, moisture, lactose and sucrose contents, by performing three authentic replicates. From the experimental data it was possible to calculate the excess of crystallizable lactose in the product. The highest value for lactose mass crystallizable by unit product found was (33.6g.395g⁻¹), and the mean of crystallizable lactose in SCM produced in Brazil was 71.42%. There were significant differences (p < 0.05) between brands of SCM for the attributes size and number of lactose crystals. It was found a significant positive correlation between lactose content and number of lactose crystals (p < 0.021). Microscopic analysis for condensed milk contributed to evaluate the quality of the product and it is useful to improve the effectiveness of industrial crystallization process, so it becomes an important tool available to the quality control in the dairy industries. Considering that Brazilian dairy industries use different parameters during standardization, cooling and lactose crystallization, the results of this study confirm the need for control of the lactose crystallization to get the expected final product characteristics.
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