

Use of microparticulate whey proteins in the production of Dulce de Leche

LIMA DE PAULA I. (1), M. P. DE MATOS VITRAL J. (1), BARROSO LANDIN T. (1), WOLFSCHOON-POMBO A. (2), TULER PERRONE I. (1), STEPHANI R. (1), CAPPA DE OLIVEIRA L. (1)

1 Universidade Federal de Juiz de Fora, Juiz de Fora, Brazil

2 INOVALEITE, Munich, Germany

OBJECTIVE

The objective of this work is the production of dulce de leche with added microparticulate whey protein (MWP) as a partial milk replacer in the manufacture of dulce de leche, with the intention of reducing the fat content of the product and improving its functional characteristics.

METHODS

Microparticulation: 122.62 g of WPC80% and 77.38 g of whey permeate were weighed, both supplied by the company Sooro Renner Nutrição S.A. (Brazil), these powders were mixed and added to 753.73 g of water and stirred for 1 hour, then stored at 8 ± 2 °C for 24 hours. After this time, 46.27 g of a 40% (m.v-1) CaCl₂ solution was added. The pH of the solution was adjusted to 4.0 using lactic acid. The mixture was heated to 95 °C for 10 minutes stirring at 3100 rpm. Finally, the heating was turned off and the stirring was increased to 10000 rpm, and the pH was adjusted to 6.5 at the end of the process. To ensure that microparticulation of the product occurred, particle size analysis was performed.

Production of dulce de leche: Dulce de leche was produced with different proportions of milk substitution for MWP. The final point of the dulce de leche was obtained by mass balance and soluble solids content. After production, compositional analyses of the product and also rheological analyses were performed, with the purpose of studying how the replacement of milk by MWP could modify the rheology and the final composition of the product.

RESULTS

The dulce de leche produced with different proportions of milk substitution by MWP showed different texture and viscosity than the control product, and the color observed in the products is also different. Another interesting result is that there is a reduction in the fat content and an increase in the protein content of the product as the milk replacement by MWPs increases.

CONCLUSIONS

With this work it was possible to conclude that it is possible to produce dulce de leche with reduced fat content and increased protein content using microparticulated whey proteins.