



OHMIC HEATING AFFECTING LACTOFERRIN PROPERTIES AND INFLUENCING ON PRODUCTION OF COLD, GEL-LIKE EMULSIONS

GUILHERME F. FURTADO^{1*}, RICARDO N.C. PEREIRA², ANTÓNIO A. VICENTE², ROSIANE L. CUNHA¹. ¹University of Campinas, Campinas, Brazil; ²University of Minho, Braga, Portugal. *furtado.gf@gmail.com

Proteins when heated tend to unfold and aggregate. Ohmic heating is a technique that has gained increasing attention because of its uniform heating, and claimed influence on the functional and technological properties of protein dispersions once heated through this technology. The aim of this work was to evaluate the effects of ohmic heating on physical and structural properties of lactoferrin dispersion, as well as to evaluate the properties of the cold, gel-like emulsions made thereof, comparing them with those obtained by conventional heating. The results showed that the heat treatment, for both treatments, resulted in aggregation of lactoferrin. However, the ohmic heating led to less aggregated molecules when compared to conventional heating. This aggregation behavior was confirmed by the increase in size, turbidity and fluorescence values and decrease of dichroic signal after heat treatment. Cold, gel-like emulsions production was related to the good emulsifying capacity of lactoferrin, combined with the emulsification method and the heat pre-treatment applied to the protein. Rheological (viscosity, elastic and viscous moduli) and microstructural (droplets/protein network) properties were intrinsically related to the heat treatment of the protein - ohmic heating produced gel-like emulsions with a less rigid structure. These emulsions could be interesting for food applications containing heat-sensitive ingredients.

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