

## Interactions between chitosan edible coating constituents: Performance Indicators

Cerqueira<sup>1</sup>, M.A., Martins<sup>1</sup>, R.C; Silva<sup>1</sup>, J.S.; Lima<sup>2</sup>, A.M.P., Souza<sup>1</sup>, B.W.S., Vicente<sup>1\*</sup>, A.A., Teixeira<sup>1</sup>, J.A, Moreira, R.A<sup>2</sup>

\*Email: [avicente@deb.uminho.pt](mailto:avicente@deb.uminho.pt), phone +351 253 604419, fax: +351 253 678986

<sup>1</sup>IBB – Institute for Biotechnolgy and Bioengineering, Centre of Biological Engineer, Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Pt.

<sup>2</sup>Depto de Bioquímica e Biologia Molecular, Universidade Federal do Ceará, Campus do Pici, 60451-970, Fortaleza (CE-Br).

Keywords: edible coatings, edible films, chitosan, cheese.

One of the problems occurring during cheese ripening and later on, along the distribution chain, is the occurrence of molds and the loss of water. Chitosan has been used as antimicrobial and antifungal films and coatings due to its property of inhibiting the growth of many pathogenic bacteria and fungi. Using chitosan as coating we try to decrease the occurrence of molds and the water loss in the cheese and promote the change of the actually used synthetic coatings where an antimicrobial (antibiotic) agent is introduced.

The objective of this work was to study the ability of chitosan, with 90 % deacetylation, with different amounts of plasticizer (glycerol, sorbitol), and lipid (corn oil) to be used as coating. Using different concentrations, of chitosan (0.5 to 1.5 %), plasticizers (0.5 to 2.0 %) and corn oil (0 to 0.5 %), the wetting capacity of the coating on the cheese, the gases permeability such as CO<sub>2</sub>, O<sub>2</sub> and water vapor, and the opacity were measured, verifying the influence of the sixteen different formulations in that parameters.

By the results we observe that the different formulations of chitosan solutions allow a variation and a improving of the analyzed parameters and that can be possible to replace the synthetic coating used in the industry by the solution of chitosan in the cheese. In this research we present the best combinations of chitosan coating which hold the best results for the shelf-life stability of cheese.

Supported by: FCT, Alfa-Valnatura.