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Effect of the use of *Gleditisia triacanthos* galactomannan edible coating and storage temperature on the shelf life of goat and cow regional cheese

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The application of edible coatings has been widely studied for horticultural products, while hardly explored for dairy products. In this work a novel galactomannan (extracted from *Gleditsia triacanthos*) edible coating was tested in a semi-hard goat and cow milk cheese - *Regional cheese* - during storage at two different temperatures (4 and 20°C - 50% RH). The coating formulation has been optimized in previously work. Physical, chemical and microbiological analyses were performed in cheese samples during 21 days of storage. A 2^2 factorial experimental setup was performed and Pareto charts were used to define the parameters that have most influenced cheese shelf-life.

The results show that the application of the coatings on cheese samples can be used to decrease the water loss in cheese samples and the colour change during the storage time ($p<0.05$). At the end of the 21 days of storage the cheese samples have values of moisture between 15.3 and 13.0 % (w/w) for coated cheeses at 4°C and 20°C, respectively, and 12.84 and 11.13 % for uncoated cheese samples at 4°C and 20°C, respectively. The hardness of the cheese decreased, depending on the temperature, with the presence of the coating. Microbiological analysis of cheese samples present a smaller increase of the CUF/g in coated cheese. Counts of the total mesophilic bacteria and of total molds/yeast showed significant increases for all samples, having lower values in the coated cheeses.

From these results it can be concluded that galactomannan edible coatings could be beneficial and of commercial importance for the dairy industry in terms of cheese shelf life. They can be used to avoid premature desiccation (lowering the weight loss) and to preserve the appearance of the product and may be used to incorporate e.g. natural preservatives to avoid post-contamination.