

New antimicrobial edible films that increase the lifespan of cheese

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Credit: Asociacion RUVID

Researchers at the Universitat Politècnica de València (UPV) have developed new coatings to apply to soft cheese. These coatings are totally edible and have an antimicrobial capacity, which increases the lifespan of the cheese. These films incorporate oregano and rosemary essential oils as antimicrobial agents, and chitosan, a by-product that comes from crustacean shells.

According to Chelo González, a researcher at the Institute of Food Engineering for Development of the UPV, the lifespan of commercial soft [cheese](#) treated with pimaricin is about 21 days in cold storage. "The most common causes of deterioration are excessive surface dehydration and the growth of micro-organisms such as fungus or yeasts, which produce a strange flavour or odour, a slimy texture and a significant visual alteration", explains Chelo González. Applying the edible coating developed by these researchers, alternatives to the use of pimaricin and polyvinyl, commonly used on commercial cheese, can be obtained.

Another possible application in mature cheese is to decrease the growth of fungus on the surface of the cheese during the maturing process, which can enter into the pieces when they have pressing faults or fissures. "In this case, applying the coatings that we have developed will reduce the proportion of product losses in the cheese factories and therefore the important economic losses that this implies".

Of the oils used, the oregano oil was the most effective, inhibiting the [fungal growth](#) in a similar way to a conventional pimaricin treatment. Moreover, the researchers conducted a sensory study that enabled them to adjust the concentration of the essential oil in order to obtain formulations with antifungal activity together with a good sensory acceptance. In fact, the more than 100 panellists that were used for the sensorial analysis gave higher scores for the cheese coated with [essential oils](#), for taste and odour attributes, in comparison with the uncoated cheese.

Natural alternative

Today, the most widely used method of avoiding fungal growth in cheese is the application of natamycin (or pimaricin) –a common antifungal agent in the cheese industry- and a coating of polyvinyl acetate plastic. "The product that we have obtained is an alternative to the use of

pimaricin and non-edible plastics. Moreover, using a natural and edible product reduces the fungal problems and controls the weight loss during the maturing", concludes Chelo González.

Researchers at the Institute for Animal Science and Technology, led by Professor Pilar Molina, and at the Department of Agroforest Ecosystems of the UPV, led by Pilar Santamarina, have also participated in this project. The conclusions of this work were presented in the last edition of the Iberoamerican Congress in Food Engineering and they will be released shortly in the International Journal of Food Studies.

Provided by Asociacion RUVID

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