Natural antimicrobial peptides and their use in edible food films

Bacteriocins are a large group of bioactive peptides ribosomally syntetized with antimicrobial activity against other bacteria. For these reasons, they could be used to inhibit or limit foodborne pathogen growth that increase also the shelf life of food.

We patented the composition of an edible and antimicrobial coating (Patent n° 102018000006424 at UIBM in Italy) in which it is possible to insert Nisin or its producer bacterium *Lactococcus lactis* to obtain the antimicrobial characteristic.

The composition of coating is very simple and affordable but above all an edible coating could contribute to reduce garbage amount and if coating is with producer *L. lactis* it could also be ingested like probiotic integrator by lactose intolerant people.

Our study was a 30 days long challenge test using a fruit and a meat product artificially contaminated with *L. monocytogenes* NCTC 10888 and wrapped with our two different edible coatings, one made antimicrobial using Nisin and the other using the producer *L. lactis.*

Results showed for both coatings high decrease of Listeria concentration indicating as bacteriocins like Nisin or its producer could be used in food packaging to control foodborne pathogens and related diseases.