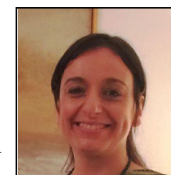


The technological potential of fermented cheese whey-A natural product as natural disinfectant agent

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Abstract

Due to the consumer's increasing awareness of the potential negative impact that chemical disinfectants have on health, an increasing amount of research has turned to identifying alternative antibacterial substances, which can be more effective and less detrimental both to human health and the environment.

Cheese whey is a by-product that has shown to be very promising in this area. In our work we aimed at developing a low-cost, and scalable fermentation protocol using whey from mixed origins (cow, ewe, goat) to produce a natural disinfectant with less organic content and high levels of lactic acid. Fermentation was achieved using a specific mesophilic-lactic acid bacteria starter mix over a prolonged fermentation (120 h), which yielded higher lactic acid production with very reduced lactose content. Antibacterial activity was tested against three main food pathogens, namely *Listeria monocytogenes*, *Salmonella enterica*, and *Escherichia coli* O157:H7, and also against thirteen other food contaminants bacteria. We then tested our fermented whey as a disinfectant in shredded lettuce and compared it to chlorine. We focused on quality indexes such as texture, color and sensory perception, as well as microbial quantification, pH determination and O₂ and CO₂ production of shredded packed lettuce, throughout the length of ten days. Overall, results showed that not only microbial quality was better with our whey solution but also that all the quality indicators were similar or better than those obtained with chlorine. Overall, our work corroborates that fermented whey can be an useful, healthier and cost-effective alternative to chlorine in food disinfection.

Biography

A I G Lima completed her PhD degree in 2010 at the University of Aveiro. Currently she is a researcher at LEAF in the Instituto Superior de Agronomia - University of Lisbon and an Assistant Professor at the Lusófona University. Her main area of work is bio-active compounds from foods and plants. She has more than 35 publications, including book chapters and scientific papers, and has co-edited a book. She holds 3 international patents is participating or has participated in a total of 11 projects, national and European



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