

# FOOD CHEMISTRY & NUTRITION

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## Active ingredients based on alginate and essential oils obtained by freeze drying: Effect of encapsulating agent on their antimicrobial and antioxidant activity

**Matiacevich S, Bustos R and Alarcon J Mg**

University of Santiago of Chile, Chile

Synthetic antimicrobial chemicals have been utilized for decades to control microbial growth. However, the study of functional and active natural ingredients has been increasing, because modern consumers are demanding fresh, safe and healthy natural foods. This area is within the top ten for food innovation. The activity of essential oils and their molecular constituents as antimicrobials agents has been widely studied against many microorganisms, including several pathogens. But, due to their volatile and lipophilic characteristics it is necessary to protect them when it is incorporating to hydrophilic food matrix. The advantages of micro and nanoencapsulation have opened up new opportunities as functional ingredient by incorporation of an active (antimicrobial and antioxidant) compound. The aim was to evaluate the effect of encapsulating agents (Tween 20, Trehalose, Maltodextrin and Capsul) of antimicrobial compounds (lemongrass essential oil and its main component) in an alginate matrix freeze-dried on antimicrobial and antioxidant properties. Antimicrobial effect was depending of concentration of rehydration more than encapsulating agent. However, physical and oxidative stability was depending of them. Therefore, the natural encapsulating agents evaluated could be used to prepare natural antimicrobial ingredients by freeze-drying.

### Biography

Matiacevich S is an Assistant Professor and Chief of Food Technology career of Food Science and Technology Department, Technological Faculty from University of Santiago de Chile, Santiago, Chile. The research area is micro/nanoencapsulation of active compounds to obtain active ingredients freeze-dried and improving edible films to increase shelf life of fresh products. She had published 26 ISI scientific papers, 14 book chapters, 24 diffusion papers, 3 patents and has attended more than 100 international congresses.

silvia.matiacevich@usach.cl

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