Application of probiotic delivery systems in meat products

Trends in Food Science & Technology (2015) 46, 120-131

Carlos Pasqualin Cavalheiro[1, 2, 3], Claudia Ruiz-Capillas[1, *], Ana M. Herrero[1], Francisco Jiménez-Colmenero[1], Cristiano Ragagnin de Menezes[2], Leadir Lucy Martins Fries[2].

[1] Department of Products, Instituto de Ciencia y Tecnología de Alimentos y Nutrición (ICTAN), Consejo Superior de Investigaciones Científicas (CSIC), 28040, Madrid, Spain.
[2] Programa de Pós-Graduação em Ciência e Tecnologia dos Alimentos (PPGCTA), Universidade Federal de Santa Maria (UFSM), 97105-900, Santa Maria, Brazil.
[3] Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Ministry of Education of Brazil, 70040-020, Brasília, Brazil.

[*] Corresponding author: claudia@ictan.csic.es

Abstract

Background: In recent years, probiotic foods have received special attention. The most commonly used probiotic microorganisms are *Lactobacillus* and *Bifidobacterium*, and to a lesser degree, *Enterococcus* and *Pediococcus* due to their importance for consumer health. Probiotics have also been used as food bioprotectors.

Scopes and approach: This review addresses the potential use of different probiotic delivery strategies for use in meat products to guarantee the viability of the microorganisms throughout the different stages of processing, conservation and preparation, the aim being to obtain probiotic meat products (in some cases even combined with prebiotics) with a positive impact on consumer health.

Key findings and conclusions: In the case of meat products, these studies have mostly focused on fermented meats and, to a lesser degree, on cooked frankfurter-type products or fresh products because the processing to which they are subjected does not guarantee full viability of the microorganisms. Traditionally, starters as free cells have been used to incorporate these microorganisms into meat products. More recently, new microorganism immobilization techniques such as encapsulation have been tested. These new strategies ensure enhanced viability even in meat products subject to thermal treatment during processing or cooking.