

**Title** Development of Edible Films and Coatings with Antimicrobial Activity  
**Author** Carmen A. Campos, Lía N. Gerschenson and Silvia K. Flores  
**Citation** Food and Bioprocess Technology, 4, Number 6, 849-875, 2011  
**Keywords** Edible films and coatings; Antimicrobials; Hydrocolloids; Preservation; Packaging; Antimicrobial activity

### **Abstract**

Over the last years, considerable research has been conducted to develop and apply edible films and coatings made from a variety of agricultural commodities and/or wastes of food product industrialization. Such biopolymers include polysaccharides, proteins, and their blends. These materials present the possibility of being carriers of different additives, such as antimicrobial, antioxidant, nutraceuticals, and flavorings agents. In particular, the use of edibles films and coatings containing antimicrobials has demonstrated to be a useful tool as a stress factor to protect foodstuff against spoilage flora and to decrease the risk of pathogen growth. The more commonly antimicrobials used are organic acids, chitosan, nisin, the lactoperoxidase system, and some plant extracts and their essential oils. For the selection of an antimicrobial, it must be considered the effectiveness against the target microorganism and also the possible interactions among the antimicrobial, the film-forming biopolymer, and other food components present. These interactions can modify the antimicrobial activity and the characteristics of the film being these key factors for the development of antimicrobial films and coatings. The main objective of this article is to review the bibliography of the last years concerning the main hydrocolloids and antimicrobials used for developing edible films and coatings, the methods used to evaluate the antimicrobial activity, the applications and the legislation concerning edible films and coatings. Also, the different strategies related to the modification of structural characteristics and the future trends in the development are discussed. The information update will help to improve the design, development, and application of edible films and coatings tending to increase the safety and quality of food products and to prepare for food legislation changes that might be necessary while identifying future trends concerning a better functionality of edible films thought as a stress factor for lengthening shelf life of food products.

<http://www.springerlink.com/content/nq42173880j70362/fulltext.pdf>