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### Abstract

Fish products are highly perishable and for this reason should be stored under appropriate hygienic conditions. Microbial contamination reduces the shelf-life of food that change the organoleptic qualities and increases the risk of foodborne illness also. For these reasons scientists are trying to study, produce and test essential oils (i.e. lemon, citrus, oreganon) for the packaging that can inhibit the growth and spread of pathogenic microorganisms and in this way prolong the shelf life of perishable products.

**Keywords:** Essential Oils; Packaging; Fish Products.

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## Introduction

Fish products, food highly perishable, should be stored and handled under appropriate hygienic conditions respecting the cold chain from production to packaging [8-10].

Microbial contamination reduces the shelf-life of food and increases the risk of foodborne illness [6]. *Pseudomonas*, *Enterobacteriaceae* and lactic acid bacteria are among the main causes of the deterioration of the meat, other contaminants may be *Listeria monocytogenes*, *Salmonella typhimurium*, *Salmonella enteritidis*, *Escherichia coli* 0157: H7 and *Yersinia enterocolitica* responsible for various diseases and even episodes of mortality. The development of pathogenic microorganisms, also impairs the organoleptic qualities.

For these reasons, recently scientists are trying to study, produce and test new methods of packaging. The antimicrobial packaging should be used in order to inhibit the growth and spread of pathogenic microorganisms and so prolong the shelf life of perishable produce and improve the safety of packaged products [11, 4].

Recently several essential oils were studied to develop antimicrobial plasticizers (i.e. essential oil of lemon, citrus, oreganon [2]. Essential oils are concentrated liquids of complex mixtures of volatile compounds and can be extracted from several plant organs.

Essential oils possess antioxidative and antimicrobial properties; the uses of essential oils have received increasing attention as the natural additives for the shelf-life extension of food products, due to the risk in using synthetic preservatives [7, 5]. The essential oils can be incorporated into packaging, in which they can provide multifunctions termed "active or smart packaging." Those essential oils are able to modify the matrix of packaging materials, thereby rendering the improved properties [1]. The antimicrobial packaging offers the possibility to increase the shelf life by reducing microbiological damage to the products during transport to the consumer. Also edible films, spiked with essential oils, have been developed to protect fresh food and processed by human pathogens, thus extending the shelf life [3].

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