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“Bridging the gap between increasing knowledge and decreasing resources”

Using of Natural Preservatives for Meat Drying and Storage

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Abstract

Drying is a traditional processing that has been used over many centuries to preserve foods. Drying is used for making a variety of specialty processed meats, for example, country ham which is dried at ambient temperatures and beef jerky, dried at elevated temperatures. Drying procedures vary in terms of temperature, relative humidity, rate of air movement, and final product characteristics. The drying process has been shown to be an efficient method of conservation, but using high temperature during drying can increase microbial and chemical reactions and leads to deterioration of food quality. Processed meat is a main source and route of infection by food-borne pathogens, such as, bacteria which is one of the principal types of microorganisms that cause food spoilage and food-borne illnesses. There are some foodborne illnesses attributed to dried meat such as salmonellosis or infestation by *Escherichia coli*. The microbial and chemical deterioration can be controlled using either synthetic or natural preservatives. Nowadays, meat industry uses chemical additives in several meat processes like curing to prevent growth of food-borne pathogens and extend the shelf life of refrigerated storage. Since concern over the safety of chemical additives has arisen in recent years, consumers increasingly demand use of natural products as alternative preservatives in foods. Particular interest has been focused on the potential application of plant essential oils as safer additives for meat, to prevent the microbial and chemical deterioration when added to food. Whereas, the use of natural preservatives during drying and further storage in rural areas of developing countries can replace chemicals compounds with negative impacts on human health. This project investigates the effect of oregano essential oil on meat drying by controlling the microbial load and water activity during the process of drying in a conventional oven and the storage. The results will show the influence of using essential oils in beef drying and during the storage against *Escherichia coli* ATCC 25922.

Keywords: Drying, food-borne pathogens, meat drying