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Farmers’ and academia’s views”

Evaluation of volatile compounds in a value-added jerky by incorporating Ajwain and Thyme essential oils

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Abstract

There has been a growing interest and demand in the consumption of medicinal plants over the last two decades. Their extracts and essential oils became a fascinating trend in the food and pharmaceutical industries. They are considered a source of bioactive natural compounds with antioxidant, antifungal, antibacterial, and yet antiviral properties. For instance, Thyme (*Thymus vulgaris*), an aromatic plant and herb that belongs to the Lamiaceae family, with a grassy appearance that grows in many parts of the globe, has been used as a seasoning agent as well as a very valuable meat additive. Thyme essential oil (TEO) application in meat products appeals to food processors and consumers mainly due to its antimicrobial and flavoring properties. Moreover, we propose the application of Ajwain (*Trachyspermum ammi*) essential oil (AEO), a prominent fragrant herb belonging to the Apiaceae family, on meat products as a preservative and flavoring compound due to its similar properties to Thyme. Ajwain seeds, commonly used as a spice in Indian dishes, are small, oval-shaped, and pale brown, with a bitter and spicy taste and aroma like Thyme. Other various uses of Ajwain are food preservative, antioxidant, and natural medicine, particularly for digestive ailments. The current study evaluates the chemical composition of our jerky snack food, which has been subjected to different essential oil treatments. Hot air blanching (HAB) and oil treatment (OT) were applied to meat samples using two essential oil doses: 0.75 mL and 1.5 mL. All samples were dried after each treatment at 55°C for 6 hours. We considered that it was critical to analyze and quantify the chemical composition of the final product. A dual technique was proposed to identify and quantify volatile compounds using headspace solid-phase microextraction (HS-SPME) and gas chromatography-mass spectrometry (GC/MS). Our results showed that the chemical composition between TEO and AEO was indeed similar. However, applying those essential oil treatments had significant differences in the quantification of volatile compounds for the dried meat. Moreover, they are an excellent preservation alternative for our value-added jerky product.

Keywords: Ajwain essential oil, chemical composition, dried meat, jerky, thyme essential oil