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Study of Biologically Active Compounds and Inhibitory Activity of Bay Leaves Laurus nobilis L.

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Abstract. The global demand for medicinal plants has increased recently as food source for functional, healthy and sensory properties. This study allows the identification of active compounds found in alcoholic bay leaf extracts by GC-MS technique that give the plant functional properties. The inhibitory activity of extracts at concentrations of 0.25, 0.50, 0.75 and 1 mg/ml were tested against four types of bacteria: Staphylococcus aureus, Bacillus cereus, Escherichia coli and Pseudomonas aeruginosa. The results found the emergence of a number of active compounds, volatile oils and flavor compounds with a retention time (RT) ranging between 4.861-40.551 minutes, including compounds that gave the highest area of 24.96% such as Eucalyptol and alpha.-Terpinyl acetate compound by Area 10.87%. The results also showed that S. aureus recorded the highest inhibitory diameter at a concentration of 1 mg / ml was 10.7 mm, while E. coli recorded the lowest inhibitory diameter compared to the rest bacteria at the same concentration was 9.5 mm. B. cereus and P. aeruginosa, showed the highest inhibitory diameter were 10.4 and 9.8 mm at a concentration of 1 mg / ml. Which indicates the possibility of introducing bay leaves in many diets, improving its health and functional properties and prolonging the storage period due to rich in biologically active compounds

Highlights:

1. Active Compounds Identified: Eucalyptol (24.96%), α-Terpinyl Acetate (10.87%) via GC-MS.
2. Antibacterial Activity: S. aureus (10.7 mm), E. coli (9.5 mm) at 1 mg/ml.
3. Potential Applications: Functional food ingredient, health benefits, extended shelf life..

Keywords: active compounds, Bay leaves, GC-MS, extracts, Laurus nobilis L

Introduction

Bay (Laurus nobilis L.) is a native plant belonging to the Lauraceae family, it is also known as bay or laurel leaves, with spear-shaped leaves and aromatic wavy edges. It's one of the most common medicinal plants, used to treat digestive problems as epigastric pain, bloating and eructation difficulties [1]. Bay leaves are used in the treatment of rheumatism, rash, dermatitis, digestive problems such as poor digestion and flatulence, and in the treatment of type II diabetes [2,3]. Leaves are used as flavoring materials for many foods. The essential oil of the leaves of the laurel plant, which is widely used in