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In vitro antibacterial effect of leaves and root extract of *Allium paradoxum* on control of *Escherichia coli* O157:H7

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Abstract

According to recent observation, some natural compounds, such as plant essential oils, have antimicrobial effects, so they might be more suitable and harmless alternative to chemical compounds used in food products to combat pathogens of food origin. These constituents are oily and aromatic that are extracted from different parts of plants. The use of essential oils in food, cosmetics and pharmaceutical industries has expanded today due to their antimicrobial and antioxidant properties. These compounds increase the permeability of the cell membrane and the loss of cell components. Antioxidant and antimicrobial activity of essential oils is due to the presence of phenolic and flavonoid groups. In this study the MIC and MBC of leaves and root extract of *Allium paradoxum* were determined against *Escherichia coli* O15:H7. MIC for the leaves extract of *Allium paradoxum* for *E.coli* O15:H7 was 16 mg/ml; while for roots was 8 mg/ml. The MBC for leaves and root extract of *Allium paradoxum* was 16 mg/ml. The results suggest that the use of *Allium paradoxum* oil increased bactericidal and bacteriostatic activity and essential oils can be used as a natural antimicrobial agent in food products.

Keywords: *Escherichia coli* O157:H7, *Allium paradoxum*, MIC, MBC.

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