A study on the antibacterial activity of ethanolic and methanolic extracts of Menta pulegium

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Background and objectives: Plants are known as one of the most common natural sources of antimicrobial agents. Usage of plants as traditional health remedies is the most popular for 80% of world population. Menta pulegium L. is one of 20 species of Menta genus of Labiatae family that commonly known as pennyroyal. This plant has been traditionally used for its antiseptic effect for treatment of common cold, sinusitis, bronchitis, cholera and food poisoning. The aim of this study was evaluation and comparing the antibacterial activity of methanolic and ethanolic extracts of Menta pulegium L.

Materials and methods: Plant material was collected from around Dezful in Khouzestan. Then ethanolic and methanolic extracts were prepared using 1 g of dried plant powder and 10 mL of 80% ethanol or methanol. Antibacterial activity of these extracts was assessed using standard disc diffusion method against pathogenic bacteria. For this purpose four concentrations of each extract (0.10, 0.20, 0.40 and 0.60 g/mL) were prepared and sterile filter paper discs (6mm) were saturated by each extract. A lawn culture of test bacteria with 0.5 McFarland turbidity then prepared on Muller-Hinton agar using sterile cotton swab and prepared discs were placed on lawn cultures and incubated at 37°C for 24 h. Simultaneously discs containing standard antibiotics were placed on cultures. After incubation the inhibition zone diameter around each disc was measured in millimeter.

Results: The test results showed that different concentrations of both ethanolic and methanolic extracts of this plant had high antibacterial activity against gram positives bacteria (Bacillus cereus, Staphylococcus aureus) and gram negatives bacteria (Escherichia coli, Pseudomonas aeruginosa). The maximum effects was observed in case of both ethanolic and methanolic extracts in all tested concentrations on Proteus mirabilis and the lowest effect was on Pseudomonas aeruginosa.

Conclusion: With regard to these results it can be said that addition of this plant in foods as food additive can control food poisoning pathogens such as staphylococcus and bacillus and also have potential application in treating opportunistic infections due to pseudomonas.

Antibacterial activity, ethanolic and methanolic extracts, Menta pulegium

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