Abstract

Extracts of some plants have the potential to inhibit the growth of new microorganisms as antimicrobial agents and have been widely used in medicine, food industry, and so on.For this reason, herbal compounds are one of the valuable resources in the treatment of diseases. Some of these herbs such as Desmostachya bipinnata, Tecomella undulata and Momordica charantia are used in traditional medical systems and have many therapeutic applications in the areas of diabetes treatment, skin diseases, wound healing and more.The aim of this study was to investigate the antibacterial effects of the combined extracts of the above mentioned plants on Shigella dysenteriae, Staphylococcus aureus, Pseudomonas aeruginosa and Escherichia coli, as well as to identify the presence of MAP30 protein coding gene in these plants.For this purpose, extraction was done by soaking and distillation of plant samples with 96% ethanol and water. Human pathogenic bacteria were also obtained from Zabol University Biotechnology Institute and cultured under controlled conditions.After preparation of bacterial suspension, dilutions were prepared and antibacterial tests were carried out by microbial dilution method. According to the results of the studies, the nucleotide sequence of the gene was selected from the database and after designing and constructing a suitable primer for its presence in plants.The results of antibacterial activity showed that among the hydroalcoholic extracts of the studied plants, the most effective effect was the extract of tecomella undulata and momordica charantia with a minimum inhibitory concentration of 1.87 mg / ml against Staphylococcus aureus.The results of the combined tests also showed that the extracts had approximately the same inhibitory potency. According to the colony count, the most inhibitory effect was related to the composition of momordica charantia and Desmostachya bipinnata extracts against Staphylococcus aureus. The results of MAP30 gene expression in three studied plants showed that this gene was not identified in two plants of Desmostachya bipinnata and Tecomella undulata and only its presence in momordica charantia was confirmed.

Key words: infectious diseases, Antibiotics, Medicinal Plants, Resistance, MAP30

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Antibacterial effects of combination of hydroalcoholic extracts of plants of Desmostachya bipinnata, Tecomella undulata and Bitter melon and homologous and orthologous identification of some genes of bioactive peptides

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