

Isolation and molecular identification of bacteria producing antibiotics water and sediment of Anzali wetland

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Abstract Background and purpose: today studying on new drugs especially antibiotics has special importance. In spite of noticeable improvements in chemical synthesis and engineered synthesis of antimicrobial compounds, nature has remained as the purist and most diverse source of antibiotics. Complicated environmental conditions governs the oceans which covers 70 percent of the earth's surface most of the unique chemical metabolites are extracted marine environments which are in fact a small part of biological and chemical diversity of oceans. Today, because of continuous evolution of pathogens and their resistance to antibiotics, demand for creating new and effective antimicrobial compounds have been emerged. The purpose of this study is to isolate aquatic microorganisms the sediments and water of the Caspian sea and to investigate their antibacterial activity against human pathogenic strains including: *Escherichia coli*, *Staphylococcus aureus*, *Bacillus subtilis* and *Pseudomonas aeruginosa*. **Material and procedure:** samples collected in spring and the west part of the Anzali wetland. After collecting the sample and providing suspension and cultivating it in agar medium and ISP, using chemical tests the isolated bacterias were examined. After finishing extracting DNA, PCR was conducted to get the genome of the bacteria. PCR products after conducting electrophoresis and purification gel by Bioneer company kit was sent to GenFanavaran company to determine the consecution. The obtained consecution was to the 16S rRNA consecutions of similar bacterias which were available in gene bank of GenBank/EMBL/DDBJ via BLASTN program was compared. **Conclusion:** finally after consecution two gram-negative bacterias naming *Pseudomonas* and *Pseudomonas putida* isolated. So these two bacterias can be used to produce metabolites that have antibiotic properties.

Keywords : **Keywords:** Marine bacterias, Bioactive compounds, *Pseudomonas*.

