

## Study the kinetic of *in vitro* antibacterial activity of *Salicornia* spp. against *E. coli* strains

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**Background and Aims:** The search of biologically active component of plants has always been great interest to scientists looking for new sources of useful alternative against diseases. there are different reports about antibacterial properties of *Salicornia herbacea* and *S. europea* especially against *E. coli* but there is no report available from the effect of Iranian species against this bacterium. In this research we study the antibacterial effect of extract of different Iranian *Salicornia* species, against *E. coli* by aiming to serve that as an alternative for antibiotics to avoid the side effect of them on the host cells.

**Methods:** Plant extract were prepared in final concentration of 100 mg ml<sup>-1</sup> from different *Salicornia* species gathering from different part of Iran. Bacterial suspension was prepared by using *Escherichia coli* isolated from food. The bacterial culture were treated by plant extract or oxytetracycline antibiotic compare with control. A treatment was incubated overnight at 37 °C in 96 well microplate in microplate reader system (BioTek's PowerWave XS2, USA). Analyses were conducted using SPSS (SPSS version 11) repeated measures ANOVA model.

**Results:** the effect of extract of *salicornia* shown very high reduction in the growth of *E. coli* during 24 hours, quit comparable with oxytetracycline. Different *Salicornia* spp extract were shown either moderate effect, reducing 1.7 time or extreme effect, reducing 2.5 to 4 time of bacterial growth rate during 24 hours. Not only the changing of the species change the antibacterial effect, but also the place of the growth of the plant showed big influence on the antibacterial effect of the plant.

**Conclusions:** the effect of the extracts was depends on the plant species and growth climates. saponine has the ability to lysis the cell wall, it predicted plant extract could effect the bacterial growth by affecting the cell wall of the *E. coli*.

**Keywords:** Antibacterial activity; *E. coli*; *Salicornia*.