The environmental factors of temperature, salinity effect on growth of Zinc resistant bacterium isolated from Persian Gulf sediments (*Pseudomonas sp.*)

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Abstract
Biosorption is an effective technology for optimal removal of pollutants such as heavy metals from marine ecosystems. In the present study, the microorganism, resisted to zinc, was isolated from Persian Gulf sediments and indentified via biochemical tests. Then, the growth ability of indentified microorganism was investigated in different concentrations of zinc. Also, the effect of salinity on the growth of microorganism was studied and the optimal conditions for its growth were determined. *Pseudomonas sp.* was isolated as a zinc-resistant bacterium and identified using biochemical tests and bacteriologic references. The mentioned bacterium was able to grow up to a high concentration of zinc (320 mg/l) and the increase in zinc concentration in environment caused the bacterium growth to decrease. The maximum bacterium growth in 20 mg/L of this metal was measured to be 0.87. With the increase in concentration of this metal to 320 mg/L in environment, the bacterium growth decreased to 0.4 which shows the significant difference with the maximum bacterium growth in 20 mg/L concentration of zinc metal ($p \leq 0.05$). The optimum temperature was 25 °C for this bacterium and its maximum growth was significantly different in 15 °C and 45 °C ($P \leq 0.05$). The results of halophile test also showed that this bacterium is halotolerant. Bacterial growth increased by increasing salt concentration from 0 to 4%, but when salt concentration reaches to 6, 8 and 10%, it decreased significantly.

Keywords: Zinc, *Pseudomonas sp.,* Temperature, Salinity, Persian Gulf