Bioremediation of wastewater and irrigation water by *Lactacoccus spp. and Enterococcus spp.*

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Summary

The use of wastewater or low quality water for irrigation is increasingly being considered as technical solution to minimize environment degradation and sustainability. Due to extensive industrialization, increasing population density and a highly urbanized society the world is facing problems related to management of wastewater. Nowadays, there are a lot of wastewater treatment technologies, but bioremediation is an invaluable tool box for wider application in the realm of environmental protection. Bioremediation approach is currently applied to contain contaminants in soil, groundwater, surface water, and sediments including air. These technologies have become attractive alternatives to conventional cleanup technologies due to relatively low capital costs and their inherently aesthetic nature. It can be defined as any process that uses microorganisms or their enzymes to return the environment altered by contaminants to its original condition. The objective of this study was to investigate the efficiency of *Lactococcus spp.* and *Enterococcus spp*. Species on municipal wastewater and low quality irrigation water remediation. The studies were performed with raw samples of municipal wastewater taken from raw wastewater discharge location in Istanbul and diluted samples (1:5, 1:25, 1:50, and 1:100) were used in tis study and simulate different quality irrigation water (0, 3, 6, 9, 12 Sodium Adsorption Ratio (SAR) and 0, 4, 8, 12 dS/m electrical conductivity (EC)) using Na, Ca and Mg salt was also used. The results of this study show that both *Lactococcus spp.* and *Enterococcus spp*. species can effectively be used in the removal of heavy metal and Na from the municipal waste water and low quality of irrigation water.

Key words: bioremediation, wastewater, microorganisms