

Bacterial Diversity and Antibiotic Resistance in Coastal Sediments of Izmir Bay, Aegean Sea

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Abstract : The scarcity of research in bacterial diversity and antimicrobial resistance in coastal environments as in Turkish coasts leads to difficulties in developing efficient monitoring and management programs. In the present study, biogeochemical analysis of sediments and antimicrobial susceptibility analysis of bacteria in Izmir Bay, eastern Aegean Sea under high anthropogenic pressure were aimed in summer period when anthropogenic input was maximum and at intertidal zone where the first terrigenous contact occurred for aquatic environment. Geochemical content of the intertidal zone of Izmir Bay was firstly illustrated such that total and organic carbon, nitrogen and phosphorus contents were high and the grain size distribution varied as sand and gravel. Bacterial diversity and antibiotic resistance were also firstly given for Izmir Bay. Antimicrobially assayed isolates underlined the multiple resistance in the inner, middle and outer bays with overall 19% high MAR (multiple antibiotic resistance) index. Phylogenetic analysis of 16S rRNA gene sequences indicated that 67 % of isolates belonged to the genus *Bacillus* and the rest included the families Alteromonadaceae, Bacillaceae, Exiguobacteriaceae, Halomonadaceae, Planococcaceae, and Staphylococcaceae.

Keywords : bacterial phylogeny, multiple antibiotic resistance, 16S rRNA genes, Izmir Bay, Aegean Sea

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