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Occurrence and distribution of *Bacillus* species in Turkish marine environmentsGülşen Altug¹ and Samet Kalkan²¹Istanbul University, Turkey²Recep Tayyip Erdogan University, Turkey

Although *Bacillus* species are isolated in both terrestrial and marine environments, marine bacilli display more effective metabolically peculiarities depending on the specific environmental conditions of marine habitats. While *Bacillus* species play a significant role in biogeochemical recycling processes of metal salts, some of them described as potential biocontrol agents. In this study, occurrence and distribution of *Bacillus* species were investigated using culture-dependent and independent methods in the sea water samples taken from various marine areas of Turkey in different periods between 2000 and 2016. Variable environmental parameters; temperature, salinity, conductivity, pH and dissolved oxygen were recorded *in-situ*. The members of Bacillaceae were identified using both culture dependent methods; VITEK compact 30 micro identification system and molecular methods; bacterial DNA isolation, real time PCR (Q-PCR), PCR product purification, DNA sequence analysis and phylogenetic analysis. Micro-geographical distribution of *Bacillus* species and environmental variables were determined. The most common species were recorded to be *B. flexus*. Besides, *Bacillus cereus*, *B. thuringiensis*, *B. pumilus*, *B. firmus*, *B. mycoides*, *B. megaterium*, *B. oceanisedimini*, *Geobacillus stearothermophilus* showed high frequency of occurrence. The metabolic characteristics and color, spore-forming forms and resistivity frequencies against heavy metal salts of the strains have been shown that marine bacilli isolated from the marine areas have significant potential for possible biotechnological applications such as remediation of heavy metal polluted areas, can be used as a source of natural carotenoids and bio-drugs.

Biography

Gulsen Altug (Prof. Dr.) is a Professor and Marine Microbiologist in the Department of Marine Biology of the Fisheries Faculty at Istanbul University. Her research focuses on marine bacteriology, including bacterial diversity and micro-geographical variations, clinical, industrial and ecological uses of marine isolates, bacterial pollution, epibiotic bacterial communities and anti-bacterial characteristics, bacterial remediation (oil degrading capacity of marine isolates), and resistant bacterial isolates against heavy metals and antibiotics. She is also the Inventing Founder of the biotechnology start-up company named Biyotek15 R&D Training and Consulting Industry and Trade Ltd. Company in Entertech of Istanbul University Technocity.

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Notes: