

Title: Investigation and Characterization of an Antibiotic Resistance Gene in Bacteria Identified From Deep Surface

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The spread of antibiotic resistance among microorganisms will constitute a global threat for us in the near future. To minimize this problem, it is necessary to obtain information on new antibiotic resistance genes from natural environments. As a result of our studies, a beta-lactamase gene was isolated from terrestrial underground environment for the first time by using metagenomics and direct cloning strategy. A total of 10 plasmid DNAs containing resistan gene insertions were randomly selected and sequenced with universal primers. The bacterial ribosomal gene sequences we obtained from sequencing were analyzed using the National Local Biology and Information Center (NCBI) website, which uses existing DNA databases, using the Basic Local Alignment Search Tool (BLAST) function. It has been found that the germs present in this bacterial population are very similar to Bacillus spp. The nucleotide sequences generated for the 16S rRNA genes were deposited at GenBank. most similar to penicillinase was obtained from Bacillus licheniformis. The resistance gene was confirmed by subcloning and the minimum inhibitory concentration values were measured against several test betalactam antibiotics. Different isolates were tested for growth with antibiotics kanamycin (100 µg/ml), ampicillin (100 µg/ml), rifampicin (100 µg/ml), neomycin (50 µg/ml) or tetracycline (10 µg/ml) at 37°C for 24 h. This study extends information about resistance to antimicrobials that can help to minimize future threats.

Biography

Nurcan Vardar Yel has completed her PhD at the age of 28 years from Istanbul Technical University. She worked at the University of California San Diego (UCSD) as a visiting researcher for 6 months in order to complete the last part of her Ph.D. thesis with the support of international research scholarship. She worked at the University of California State University, Department of Chemistry as a visiting professor for 3 months. She has published more than 10 papers in reputed journals and 30 articles at international conferences. She also worked at different pharmaceutial companies as a researcher.

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