

Microbiological Examination and Antimicrobial Susceptibility of Microorganisms Isolated from Salt Mining Site in Ebonyi State

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Abstract : The microbial examination and antimicrobial susceptibility profile of microorganism isolated from the salt mining site in Ebonyi state were evaluated in the present study using a standard microbiological technique. A total of 300 samples were randomly collected in three sample groups (A, B, and C) of 100 each. Isolation, Identification and characterization of organization present on the soil samples were determined by culturing, gram-staining and biochemical technique. The result showed the following organisms were isolated with their frequency as follow: Bacillus species (37.3%) and Staphylococcus species(23.5%) had the highest frequency in the whole Sample group A and B while Klebsiella specie (15.7%), Pseudomonas species(13.7%), and Erwinia species (9.8%) had the least. Rhizopus species (42.0%) and Aspergillus species (26.0%) were the highest fungi isolated, followed by Penicillum species (20.0%) while Mucor species (4.0%), and Fusarium species (8.0%) recorded the least. Sample group C showed high microbial population of all the microbial isolates when compared to sample group A and B. Disc diffusion method was used to determine the susceptibility of isolated bacteria to various antibiotics (oxfloxacin, pefloxacin, ciprorox, augumentin, gentamycin, ciproflo, septrin, ampicillin), while agar well diffusion method was used to determine the susceptibility of isolated fungi to some antifungal drugs (metronidazole, ketoconazole, itraconazole fluconazole). The antibacterial activity of the antibiotics used showed that ciproflux has the best inhibitory effect on all the test bacteria. Ketoconazole showed the highest inhibitory effect on the fungal isolates, followed by itraconazole, while metronidazole and fluconazole showed the least inhibitory effect on the entire test fungal isolates. Hence, the multiple drug resistance of most isolates to appropriate drugs of choice are of great public health concern and cells for periodic monitoring of antibiograms to detect possible changing patterns. Microbes isolated in the salt mining site can also be used as a source of gene(s) that can increase salt tolerance in different crop species through genetic engineering.

Keywords : microorganisms, antibacterial, antifungal, resistance, salt mining site, Ebonyi State

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