

Bacterial assessment and their antibiotic susceptibility pattern from some river/canal bank water sources of Western UP and Uttrakhand area in India

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Abstract: Aim of the present study is to investigate the incidence and trial of antibiotic susceptibility of bacteria isolated from river/canal bank water sources. Water samples were collected and analyzed for the load of pathogenic microorganism and possible disease potentials of the water sources to prevent possible disease outbreak for the inhabitants. The results of the study showed that total aerobic bacterial count (cfu/ml) ranged between 2.3×10^4 to 16.4×10^6 , total coliforms (MPN/100ml) and fecal coliforms (MPN/100ml) were ranged between 2.7×10^3 to 2.78×10^6 and 1.5×10^2 to 1.7×10^6 , respectively. All of these were within the range of a high risk specified by WHO. In addition, 76.9% of the water isolates exhibited multiple antibiotics resistance.

However, the majority of the isolates showed remarkable susceptibility for Ciprofloxacin, Norfloxacin and Co-trimoxazole antibiotics. There was a high correlation between water isolates with fecal isolates of different sources both in their profile as well as patterns of antibiotic resistance which implies that the water sources might have been contaminated with mixed contaminants instigate from human as well as animal excreta. Awareness creation on water quality and sanitation together with construction of confined water sources should be encouraged to reduce the risk of water-borne diseases in the area. Appropriate antibiotic usage and public awareness creation activities are required to maintain the observed efficacy of the three antibiotics, ciprofloxacin, co-trimoxazole and norfloxacin in that particular area.

Key Words: River/Canal bank water, Coliforms, Antibiotic susceptibility.