

Detection of Brackish Water Biological Fingerprints in Potable Water

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Abstract : The chemical composition of desalinated water is modified to make it more acceptable to the end-user. Sometimes, this modification is approached by mixing with brackish water that is known to contain a variety of minerals. Expectedly, besides minerals, brackish water indigenous bacterial communities access the final mixture hence reaching the end consumer. The current project examined the safety of using brackish water as an ingredient in potable water. *Pseudomonas aeruginosa* strains were detected in potable and brackish water samples collected from storage facilities in residential areas as well as from main water distribution and storage tanks. The application of molecular and biochemical fingerprinting methods, including phylogeny, RFLP (restriction fragment length polymorphism), MLST (multilocus sequence typing) and substrate specificity testing, suggested that the potable water *P. aeruginosa* strains were most probably originated from brackish water. Additionally, all the sixty-four isolates showed multi-drug resistance (MDR) phenotype and harboured the three genes responsible for biofilm formation. These virulence factors represent serious health hazards compelling the scientific community to revise the WHO (World Health Organization) and USEP (US Environmental Protection Agency) A potable water quality guidelines, particularly those related to the types of bacterial genera that evade the current water quality guidelines.

Keywords : potable water, brackish water, *pseudomonas aeruginosa*, multidrug resistance

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