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ISOLATION AND CHARACTERIZATION OF INDIGENOUS LUMINESCENT MARINE BACTERIA FROM KARACHI COAST

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ABSTRACT

A luminescent bacterial strain was isolated from sea water samples from the shore of the Arabian Sea, Pakistan. The isolate was identified as Vibrio harveyi species upon biochemical and 16SrRNA gene analysis and coded N6. The isolated strain was subjected to physical and genetic characterization. Upon study of the genetic markers present in the isolate, it was observed that the bacterium tolerated up to 7% of Sodium chloride in simple nutrient broth medium. Unlike commonly reported luminescent bacteria, the indigenous isolate N6 showed optimum growth at 37ºC. Resistance towards low concentrations of Cadmium chloride and Copper sulfate was also recorded in N6. Of the various antibiotics screened for resistance, N6 was highly resistant to Ampicillin. No plasmid DNA was observed in the strain. The best carbon source supplemented in minimal medium was determined to be 0.2% of gluconate which gave the best growth but luminescence was not achieved on minimal medium in presence of carbon sources like glycerol, gluconate, glucose, fructose, sucrose, starch nannitol, lactose, galactose and maltose. Presence of the lux operon was determined by performing PCR for the luxAB genes, the PCR product obtained was sequenced to reveal major similarities with previously reported luxAB genes.

Keywords: *16S rRNA PCR identification, Characterization, Growth optimization, Isolation, Vibrio harveyi, luxAB genes PCR.*