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Isolation and characterization of *Rhodomicrobium vannielii* from Winogradsky column

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Purple non-sulfur bacteria (PNSB) are a group of Gram-negative anoxyphototrophic bacteria. This group is recognized by its capability of growing in diverse environments, physiological versatility and ecological importance as active participants in the carbon, nitrogen and sulfur cycles. They draw interest because of their wide range of growth modes which include photoautotrophic, photoheterotrophic and chemoheterotrophic modes. With these characters, PNSB have potential applications in bioremediation and anaerobic treatment in waste treatment processes. PNSB are pigmented with bacteriochlorophyll–*a* and carotenoids. The characteristic salmon pink to red color of the PNSB is due to the Spirilloxanthin series of rhodopsin as the major carotenoid and small amounts of Beta carotene. Absorption spectra of PNSB have maxima at 378, 461, 488-490, 522-525, 800-807 and 869-872nm.

The present study was aimed at isolation of PNSB from the Winogradsky column and identifying them using morphological, cultural and biochemical methods. The Winogradsky column is a model environment which develops highly diverse groups of microorganisms, usually in stratification, and it was used in this study for easy isolation of PNSB from samples of mud.

A Purple non sulfur bacterium was isolated using Glutamate-malate selective medium and identified as *Rhodomicrobium vannielii* according to the characters described in the Bergey's manual of systematic bacteriology; Volume 3 (Staley et al, 1989). The cells were motile, Gram negative, ovoid to spherical in shape and did not form intracellular sulfur globules. When incubated anaerobically under light, the isolate produced a red pigment. Spectral analysis for chlorophyll and carotenoids was done using a spectrophotometer and Thin Layer Chromatography (TLC). The presence of bacteriochlorophyll-*a* and carotenoids was indicated by the presence of a majority of peak maxima at 363, 476, 774 nm. There were two spots in the TLC of which the R_f values were 0.40 and 0.85, which indicated the presence of chlorophylls and carotenoids.

Keywords: Winogradsky column, *Rhodomicrobium vannielii*, anoxyphototrophic bacteria

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