



Determination of oxygen transfer coefficients in HRAP for the two aeration systems: airlift and paddle wheel

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ABSTRACT

The airlift and the paddle wheel systems are the two most widely used aeration/mixing systems for high rate algal pond facilities. Both located in the full-scale Saada (Marrakech, Morocco) plant. The gas transfer coefficient of oxygen (K_La) and the oxygenation capacity (OC) has been measured, and the energy consumption has been compared in both systems. These parameters have been determined, considering the hydrodynamic of high rate algal pond system. The tests were done in the water velocity range usually found in these types of wastewater treatment systems, in order to determine which one is the most efficient. Our results showed, for the first time, that the airlift system is more efficient in terms of energy consumption and aeration efficiency.

Keywords: Airlift; Paddle wheel; Hydrodynamic; High rate algal pond; Oxygen transfer

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