

A brief overview on advances in water treatment process

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5.1 Introduction

As per a recent report of the United Nations environmental program, around 33% of the world population currently stays in a grim situation with limited water, and by 2025 this percentage shall increase to 66% [1]. Presently, around four billion people are experiencing a shortage of clean and sanitized water supply and dying from various severe waterborne diseases annually [2]. The number is expected to grow further in near future. Studies [3–6] suggest that natural water cycle is polluted to a great extent due to excess discharge of contaminants and micropollutants into the nature cycle. On the other hand, increasing environmental pollution concerns and more stringent regulation standards imposed by the government of various countries have challenged various industries in seeking appropriate wastewater treatment technologies. To harvest more feasible water resources and to fulfill the increasing demand of clean water, several practical strategies and solutions are being implemented. The wastewater treatment processes depend on the source of pollution. Waste from domestic and sewer, industrial, agricultural waste is the main anthropogenic source of wastewater. Municipal and agriculture wastewater can be treated and reused for agricultural and industrial use [6]. Treated water from plants may be associated with the presence of suspended solids, colifins, soluble refractories, and other organic compounds that are further tedious and expensive to treat [7]. Industrial waste contains various types of heavy metals like arsenic, cadmium, lead, pyridine,