Application of photocatalytic ozonation for the remediation of aquaculture effluents: a review

ABSTRACT

The growing global population and limitations in fish catch production have led to a surge in the demand for aquaculture. Contaminants of emerging concern (CEC) are frequently being detected at low levels in surface water. These CECs, which include previously unidentified or unregulated pollutants, pose potential risks to health and the environment, though their impacts are not yet fully understood. Extensive research studies have been proposed and undertaken to address the issue of aquaculture wastewater, aiming to minimize its impact and implement effective treatment methods. This review provides an analysis of various technologies used for treating aquaculture wastewater using advanced oxidation processes (AOPs) focusing on photocatalysis and ozonation. It examines their advantages and disadvantages, as well as their respective treatment efficacies, and discusses their potential applications in sustainable aquaculture practices complying with the Sustainable Development Goals of 1, 2, and 6 as well as being in line with the Environmental Social and Governance (ESG) framework.