Water Reuse

IWA PUBLISHING

Water Reuse Vol 14 No 1, iii doi: 10.2166/wrd.2023.202

Editorial: Innovative strategies for treatment and management of saline water/wastewater

Increasing global demands for freshwater for household, industrial, and agricultural activities encourage researchers to develop low-cost and eco-friendly technologies for wastewater recycling and desalination of saline water. Additionally, proper conservation and management of naturally available freshwater in conjunction with the recycling of wastewater has become a global priority. Saline water is becoming one of the most important resources, which is available to produce potable water through desalination. The quality of saline water influences the performance of desalination plants. The resources for saline water vary from surface (sea water, brackish) to ground (brackish and oil-produced water) with variable compositions depending upon the geological factors. In addition, industrially generated saline water is another potential resource. The technologies used to desalinate saline water are costly and energy-intensive. The energy requirement to produce potable water depends on the quality of feed water, levels of water treatment and the technologies involved. Considering the emerging trends in water reuse/recycling, this special issue was mainly focused on collecting innovative strategies being developed for the treatment and management of saline water/wastewater.

This special issue was specifically intended to collect research articles focusing on developing green technologies for saline water/wastewater treatment and management involving advanced oxidation processes, biological treatment processes, process optimization and modelling, employing renewable energy in treatment/recycling processes, nanotechnology, environmental, and economic aspects of treatment processes, along with thermal and membrane technologies. After careful consideration and evaluation, 11 research and review articles were accepted for publication as part of this special issue. Briefly, Rajput *et al.* 2023 described how machine learning architecture can be employed to optimize and model the treatment process for saline water level analyses efficiently. Anupong *et al.* (2023) studied the application of deep learning algorithms that can be used to generate photovoltaic renewable energy in saline water analysis via an oxidation process. Shen *et al.* (2022) highlighted the importance of salt-tolerant microbes for recycling saline water and specifically studied the *Halobacillus trueperi* S61 isolated from the Qarhan Salt Lake using meta-genomics. Neelakandan *et al.* (2023) focused on employing a combination of Internet of Things (IoT) with a nanomaterial-based predictive model for wastewater treatment using Stacked Sparse Denoising Auto-Encoder. Bhavani *et al.* (2023) highlighted using renewable energy systems and microgrid architecture can be employed to improve the cost-effectiveness and eco-friendliness of the wastewater treatment processes. Jayakumar *et al.* (2023) synthesized, characterized, and evaluated the performance of the Chitosan/Nylon 6/Polyurethane Blend for removing Chromium (VI) and Lead (II) ions from water to highlight its potential applications for industrial wastewater treatment. Somashekar *et al.* (2023) reviewed the advancements made in saline water treatment and recycling to meet the rising global demands of freshwater. Hussain *et al.* (2023) studied the biosorptive removal of metal ions from wastewater using highly metal-resistant bacteria isolated from a prominent wastewater drain in Lahore, Pakistan. Asefa *et al.* (2023) investigated the effect of biochar addition with anaerobic digestion of the tannery wastewater to improve biogas production. Yuvaperiyasamy *et al.* (2023) studied the performance of sea water desalination by combining solar still with solar pond. Ocal *et al.* (2023) investigated the potential pressure-driven membrane process for the reusability of industrial wastewater.

The Editors are thankful to all authors for their interesting and important contributions and appreciate the assistance provided by the editorial staff of *Water Reuse* during the reviewing and publication process. The Editors extend their sincere gratitude to Editors in Chief and Associate Editors in Chief for their kind guidance and support throughout.

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