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Editorial: Green approaches towards pollutants amputation for water footprint sustainability in food systems

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Editorial on the Research Topic

Green approaches towards pollutants amputation for water footprint sustainability in food systems

Water sustainability is increasingly at the forefront of global conversations surrounding climate change, environmental degradation, and food security. Agriculture systems are significant contributors to the depletion and contamination of water resources, which is why addressing the water footprint of food systems is vital. A growing body of research is focusing on minimizing the ecological impact of food production through innovative and green approaches. These approaches often involve “pollutants amputation,” a term that describes removing or mitigating harmful contaminants and waste, ensuring the water used in food systems remains clean, safe, and sustainable (Madhav et al., 2020).

In this Research Topic, the focus was to search for such methods that can help in the protection of our environment, as well as be used for water purification. In this regard, five manuscripts were submitted; out of these, one was rejected and four were accepted after revision for final publication. The work presented in this Research Topic gives a solution for the degradation of Methylene blue dye from wastewater by employing Biochar blended with Zinc Oxide and Copper diphenylamine (Saif et al.) and pectin functionalized with Cu/Fe nanoparticles (Hassan et al.). These methods are low-cost as well as eco-friendly. Similarly, waste management for Congo red dye is addressed by using deoiled seeds of citrus plants by enhancing their adsorption potential with nanoparticle loading (Tahira et al.). This method provides an efficient way for scale up application by using agro-based waste material as an adsorbent. A review article was published in this Research Topic, which addresses water fertilizers coupling technology for crop yield (Xing et al.). This review article presents different technologies used comprehensively.

In conclusion, the road to sustainable food systems is closely intertwined with the need to protect and manage our water resources. By adopting green approaches that focus on pollutant abatement, we can significantly reduce the water footprint of food systems, safeguard aquatic ecosystems, and ensure long-term water sustainability (Kordbacheh and Heidari, 2023). It is time for all sectors to align their efforts to make this a reality, creating a more resilient and sustainable future for generations to come.

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Conflict of interest

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