**Conclusion**

The textile dyeing industry has the potential to contaminate the natural environment and water sources. Synthetic dyes, which are widely used due to their ease of synthesis, low cost, and range of colors compared to natural dyes, are the primary concern. During the dyeing process, 15% of the world's total dye output is lost and discharged in the textile effluents. The release of colored wastewater into the ecosystem can lead to aesthetic pollution, eutrophication, and perturbations in aquatic life, such as a decline in photosynthetic activity and dissolved oxygen (DO), a change in pH, and an increase in the biochemical oxygen demand (BOD) and chemical oxygen demand (COD). To treat textile wastewater, microalgae can be used. Microalgae are photosynthetic microorganisms that can use dyes and nutrients in wastewater for their growth and metabolism, thus reducing the concentration of pollutants in the water. Microalgal bioremediation of textile wastewater can occur through two processes: bioconversion or bioaccumulation process and biosorption process. During the bioconversion process, microalgae consume dyes as a carbon source and convert them into metabolites, which removes pollutants from the wastewater while producing biomass that can be used for biofuel production. On the other hand, microalgae also work as biosorbents, where dyes can adsorb to their surface. Both of these phenomena can occur simultaneously for textile wastewater bioremediation. Microalgae have a high sorption capacity due to their high surface area and strong binding affinity towards azo dyes. Some microalgae species, such as Chlorella vulgaris, Chlorella pyrenoidosa, and Oscillatoria tenuis, can degrade azo dyes into simple aromatic amines and decolorize dye wastewater. Moreover, microalgae can also reduce the chemical oxygen demand (COD) of textile wastewater. In addition to its ability to remediate textile wastewater, microalgae also have the potential for biodiesel production, as they can accumulate large amounts of lipids that can be converted into biodiesel. Microalgae technology coupled with wastewater treatment offers dual benefits: (i) wastewater treatment (ii) biodiesel production. In this study, microalgae were tested for the bioremediation of wastewater (TWW) and biodiesel production simultaneously. Results showed that *C. vulgaris* could decolorize TWW up to 99%, remove COD (76%), nitrogen, and phosphorous more than 80%, and produce biodiesel. It is concluded that *Chlorella Vvulgaris* can be employed for the treatment of TWW and biodiesel production. Microalgal treatment of textile wastewater also has some challenges that need to be addressed. One of the main challenges is the competition between microalgae and algal pathogens for azo dyes, organic carbon, and other nutrient resources. Moreover, the growth of microalgae is influenced by several environmental factors such as light intensity, pH, temperature, and nutrient availability.