Prof. Zaiuddin Shaikh Ahammad
Department of Biochemical engineering and Biotechnology

Prof. S. Wazid Ali
Department of Textile Technology

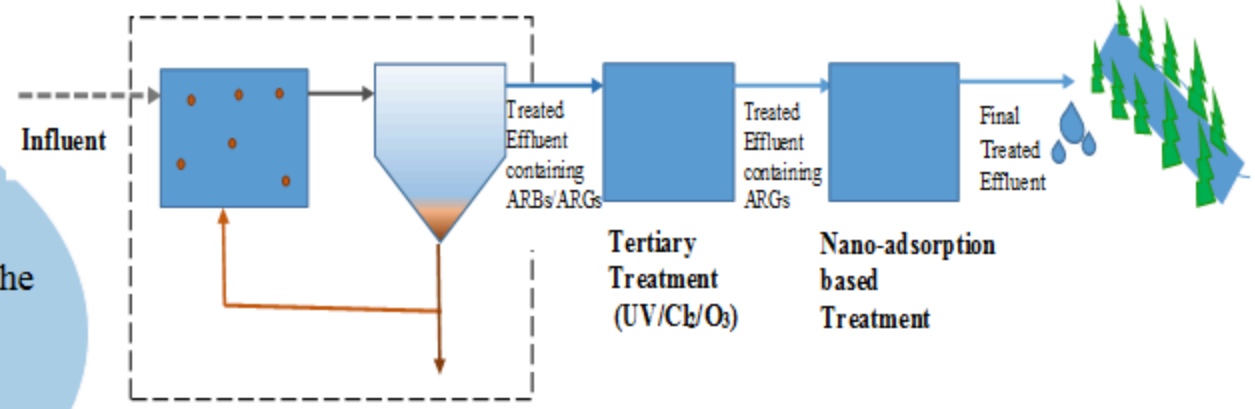
Research Expertise

Water and Wastewater, Bioremediation of Emerging Pollutants, Antibiotic Resistance in the Environment, Bioreactor Design.

Nanocomposite based Treatment Technologies for the removal of Antibiotic Resistant Genes from Wastewater.

Research Expertise

Eco-friendly / Green Chemical Processing of Textiles, Nanotechnology in Functional Materials(Polymers & Textiles), Electro-active Polymers and Textiles



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The existing treatment plants are conventional with no advanced technology targeting to eradicate the emerging contaminants from the waste water. Besides, these plants are recognized as proliferating units of ARBs and ARGs, as the microorganism and the gene material possessing the antibiotic resistance, induce the resistance in other microorganisms also. Although, the tertiary units in some treatment plants, which include Chlorination, UV treatment and Ozonantion, lead to lysis and disruption of ARBs, however the gene material of these ARBs come out and further persist without being affected by these tertiary units.This water when discharged into water bodies, directly or indirectly come in our drinking purposes, further developing this resistance against antibiotics in our system as well. If, no regulations control their discharge and usage, a time may come when our body may stop responding to these antibiotics.

Therefore it is necessary to develop a treatment technology that may account for the removal of ARBs and ARGs from the water bodies. Nanocomposite based treatment technologies is one of the most attractive area of research, which can be collaborated with the conventional treatment processes, to enhance the treatment efficiency. Nanocomposite based materials are believed to possess high surface area, stability, processability, high separation capacity, tunable properties and reactivity. Developing an effective nanoadsorbent and hence a treatment unit based upon it for the adsorption of ARGs, may lead to removal of ARBs and ARGs from waste water to a greater extent, resulting in improvement of water quality.