

Nanotechnology as an emerging tool in water purification

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Abstract: Natural resources are economic assets that determine country's wealth and its status in the world economic system. A natural resource is characterized by masses of biodiversity and geo-diversity present in many ecosystems. Among various natural resources, water is an important renewable resource and basic human requirement with its numerous uses in agriculture, household, industrial, recreational, and environmental activities. However the water resources in ecosystems have been subjected to stress and are facing manifold pressures from high population growth, unplanned urbanization, nutrient load from intensive agriculture which has resulted in the deterioration of water quality and spread of many water borne diseases across the globe. To tackle the repercussions of this degraded resource, numerous technologies such as distillation, treatment with chemical disinfectants, sand filtration, reverse osmosis, and membrane filtration have been used in the past to purify water. Currently the nanotechnology is providing the promising results in solving problems involving water quality by employing Electrospun nanofibrous membranes (ENMs) which have been tested at laboratory stage offering substantial high flux and high rejection rates compared to conventional membranes. The aim of the current research is to study the benefits of nanotechnology by exhausting ENMs at ground level for water purification and its economic impact of replacing traditional methods of water purification.

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