Water Purification Using Plants

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Phytoremediation is a process wherein plants are utilized to cleanse polluted soil, water, or air by absorbing or breaking down contaminants. Numerous studies have delved into phytoremediation, demonstrating its efficacy in purifying water. One such study employed five plants: Centella asiatica, Ipomoea aquatica, Salvinia molesta, Eichhornia crassipes, and Pistia stratiotes, to tackle three types of pollutants—suspended solids (TSS), ammoniacal nitrogen (NH3-N), and phosphate. The following chart illustrates the percentage of removal for each plant: Centella asiatica: NH3-N (98%), TSS (90%), Phosphate (64%) Ipomoea aquatica: NH3-N (73%), TSS (73%), Phosphate (50%) Eichhornia crassipes: NH3-N (74%), TSS (96%), Phosphate (98%) Another study, conducted in Iraq, focused on samples obtained from the secondary sedimentation tank of the Hamdan Central Sewage Wastewater Treatment Plant in Basrah Province. This study employed the plant Ceratophyllum Demersum L., demonstrating significant success across various parameters, including compounds and pH levels. The following chart summarizes the observed changes: pH: Generally increases post-treatment, indicating an alkalinity shift. EC (Electrical Conductivity) & TDS (Total Dissolved Solids): Both decrease post-treatment, implying a reduction in dissolved salts and an overall enhancement in water quality. BOD5 (Biochemical Oxygen Demand) & COD (Chemical Oxygen Demand): Both significantly decrease post-treatment, indicating effective organic pollutant removal and improved water quality.

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