

Experimental Study of Rapid Sand Filter Using Coconut Shell as Capping Material

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Abstract: *This study investigates the feasibility of using coconut shell as a capping material in quick sand filtration systems in response to the increasing need for effective water treatment techniques. The purpose of the experiment is to determine how coconut shell affects the turbidity, hardness, pH, total dissolved solids (TDS), and total suspended solids (TSS) of the water. To evaluate the efficacy of the filtration process made better by the presence of coconut shell, the research entails thorough testing and analysis. Promising outcomes are revealed by the investigation through methodical experimentation carried out under controlled conditions. The maintained water quality standards are demonstrated by the filtered water's pH levels, which stay within allowable bounds.*

Moreover, notable decreases in turbidity, hardness, TDS, and TSS are noted, indicating effective impurity removal from the water. The results demonstrate coconut shell's potential as an affordable and environmentally friendly capping material for quick sand filters. The abundance, biodegradability, and affordability of this natural material make it a desirable choice for improving filtration procedures in water treatment plants. Through the use of renewable resources, coconut shell can enhance water treatment efficiency while simultaneously promoting environmental sustainability.

Keywords: Rapid sand filter, Coconut shell, Capping material, Water treatment, filtration efficiency, pH, Turbidity, Hardness, TDS, TSS

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