

Potential Enhancement of Arsenic Removal Filter Commonly Used in South Asia: A Review

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Abstract : Kanchan Arsenic Filter is an economical low cost and termed the most efficient arsenic removal filter system in South Asian countries such as Nepal. But when the effluent quality was evaluated, it was seen to possess a lower removal rate of arsenite species. In addition to that, greater pathogenic growth and loss in overall efficacy with time due to precipitation of iron sulphates were the further complications. This brings the health issue on the front line as millions of people rely on groundwater sources for general water necessities. With this paper, we analyzed the mechanisms and changes in the efficiency of the extant filter system when integrated with activated laterite and hair column beds, plus an additional charcoal layer for inhibiting pathogen colonies. Hair column have rich keratin protein that binds with arsenic species, and similarly, raw laterite has huge deposits of iron and aluminum, all of these factors helping to remove heavy metal contaminants from water sources. Further study on the commercialized mass production of the new proposed filter and versatility analysis is required.

Keywords : laterite, charcoal, arsenic removal, hair column

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