

Microbial Drinking Water Quality in a Submerged Pond Sand Filter, Gosaba Village, India

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ABSTRACT

This study investigated the efficiency of an innovatively designed submerged pond sand filter, in terms of microbial removal. The filter is aimed at providing purified drinking water based on a slow sand filtration method, thus reducing the occurrence of water-borne diseases in a rural Indian village. This type of filtration can be suitable for rural areas, as it requires e.g. no electricity, no chemicals, and can be built from local materials.

Bacterial removal efficiency of the filter was 95 %, and the treated water contained 4 ± 3 cfu/100ml faecal coliforms. Turbidity was visibly removed during treatment. Bacterial removal efficiency was slightly decreased in long pumping intervals compared to short term pumping. Though the treated water cannot be deemed perfectly safe by WHO standards of 0 cfu/100 ml the contamination is below the limit for rural areas of 10 cfu/100 ml, set by the globally recognized NGO WaterAid.

This modified filter is one of the best sources of drinkable water in the area and has been functioning with no maintenance for five years. It is considered an effective and sustainable treatment method, in a developing area where few other water sources are available.

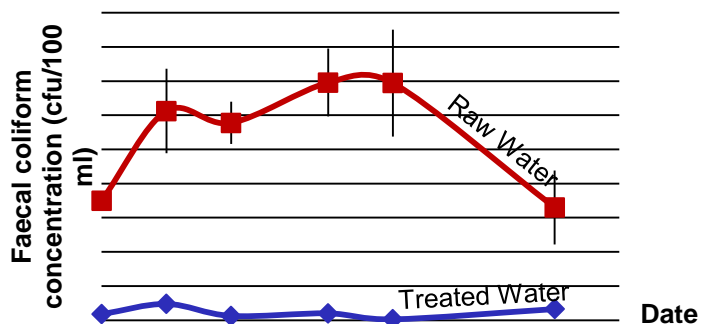


Figure 1: Bacterial concentration of raw pond water and treated water from the submerged pond sand filter of Gosaba, India (2014)