A comparative study of anoxic limestone drain and open limestone channel for acidic raw water treatment.

ABSTRACT

This study presents the performance of an anoxic limestone drain in comparison to an open limestone channel for treating acidic water. The anoxic limestone drain was designed to enhance limestone dissolution and alkalinity generation thus minimizing the potential of armouring which may decrease the rate of acid neutralization. Actual raw water from two different locations within Sg. Bekok catchment that is highly acidic with low pH value (~ pH 2.5) was used in the experiment. The anoxic limestone drain was found to perform better than the open limestone channel with respect to pH increase, acidicy decrease and alkality production. Iron was removed at relatively higher rate in open limestone channel but resulted in the armouring of limestone surfaces thus limiting further generation of alkalinity.

Keyword: Acidic water; Anoxic limestone drain; Alkalinity production; Open limestone channel.