

Interactive comment on “The Ability of Froth Formed without Chemicals to Hold Bacteria” by Ghanim Hassan and Robert G. J. Edyvean

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Most of the comments were being taken into revision. Again, I suffered a lot as the line numbers did not indicate the relevant comments but I did my best. If there are any further comments, please let me know.

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Discussion paper



The Ability of Froth Formed without Chemicals to Hold Bacteria

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Key wards: Froth flotation, Bacterial Bio-purification, Drinking water

Abstract

Froth flotation is a solid-liquid separation technique that uses hydrophobicity as a driving force. Bacteria and other drinking water microorganisms tend to be hydrophobic and can be removed from water using this application. The biggest limitation against using froth flotation in the drinking water industry is the difficulty of producing froth without chemical "frothers" and holding bacteria in this froth without chemical collectors which deteriorate water taste and odor. Recently, researchers at the University of Sheffield described a method for producing froth using only water and compressed air (Hassan, 2015). This has enabled froth flotation to be studied as an alternative to biocides for the removal of bacteria from drinking water.

This work examines the ability of froth, produced by controlling air pumping through a water column, to hold bacteria. Bacteria are moved to the top of the column and collected in the froth. The operating conditions determine the percentage of bacteria removed.

At optimum conditions, froth can hold up to 2×10^8 cfu/ml of bacteria. It has been found that air pumping at 130 l/min in a 20 cm diameter column will give the highest froth bacterial content. Time to reach stable froth bacterial concentration is decreased by increasing other variables.

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Fig. 1.