Effect of garlic solution to Bacillus sp. removal

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ABSTRACT
Biofilm is a microbial derived sessile community characterized by cells that are irreversibly attached to a substratum or interface to each other, embedded in a matrix of extracellular polymeric substances that they have produced. *Bacillus* sp. was used as biofilm model in this study. The purpose of this study is to determine the effect of Garlic solution in term of ratio of water and Garlic solution (W/G) and ratio of Garlic solution to *Bacillus* sp. (GS/B) on *Bacillus* sp removal. Garlic solution was used to remove *Bacillus* sp. In this study, Garlic solution was prepared by crushing the garlic and mixed it with water. the Garlic solution was added into *Bacillus* sp. mixture and mixed well. The mixture then was spread on nutrient agar. The *Bacillus* sp. weight on agar plate was measured by using dry weight measurement method. In this study, initially Garlic solution volume and Garlic solution concentration were studied using one factor at time (OFAT). Later two-level-factorial analysis was done to determine the most contributing factor in *Bacillus* sp. removal. Design Expert software (Version 7) was used to construct experimental table where all the factors were randomized. Bacilus sp removal was ranging between 42.13% to 99.6%. The analysis of the results showed that at W/G of 1:1, *Bacillus* sp. removal increased when more Garlic solution was added to *Bacillus* sp. Effect of Garlic solution to *Bacillus* sp. will be understood which in turn may be beneficial for the industrial purpose.

KEYWORDS:
Algae; Biofilms; Mixtures; Polysaccharides; Weighing