

Effect of Sound on the *Staphylococcus Aureus* bacterium

Kumara P. A. M. M.^{1*}, De Silva L. M. M.¹ and Aponsu G. M. L. P.¹

¹*Department of Physical Sciences & Technology, Sabaragamuwa University of Sri Lanka*

With the rapid urbanization, the major environmental effect is increasing the microbial infections through water. Therefore, it is important to investigate a method of controlling these harmful bacteria in an ecofriendly, cost effective, simple and accurate way. This investigation totally focuses on distortion of *Staphylococcus Aureus* bacterium in a water sample through the sound treatment method. As the first step, a sample of *Staphylococcus Aureus* bacterium was sub cultured in the nutrient media and one portion of the above sample was used for experiment while other part was considered as the reference sample. The piezo tweeter along with the functional generator was used to create sound waves. The bacteria samples were exposed mainly into two frequency ranges called Acoustic frequency and Ultrasound frequency throughout two hours per each frequency range in a silent room. The treated samples were cultured using the nutrient agar media. The number of the colonies of treated sample and reference sample were compared, and positive sound effect was observed. Furthermore, it reveals that ultrasound is more effective than acoustic sound to destroy the *Staphylococcus Aureus* bacterium in a water sample. It can be interpreted in numerical values as 33% of colonies in the acoustic sound treated sample have been reduced than the reference sample and also 50 % of colonies in the ultra sound treated sample have been reduced than the reference sample. According to these results, it states that the sound waves have an ability to destroy the *Staphylococcus Aureus* bacterium in a water sample.

Keywords: Acoustic frequency, Contaminations, Culture, Nutrient agar, Ultrasound

**Corresponding Author: pammadushan@gmail.com*