



**COMPARING THE EFFECT OF SODIUM CHLORIDE SOLUTION
& SEAWATER ON THE GROWTH OF *Staphylococcus aureus* &
*Pseudomonas aeruginosa***

By

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DECLARATION

I hereby declare that this thesis is my original work and not been submitted previously or currently for any other degree at UiTM or any other institutions.

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ABSTRACT

Seawater is natural water that cover about three-quarters of the earth's surface and consists of 1.3×10^{18} tonnes of water and about 33 to 37 g/L is covered with salt. The composition of the seawater can be divided into inorganic substances, dissolved gases and organic compound from the living organism. The seawater also consist a lot of mineral that beneficial to the ecosystem such as sodium (Na), potassium (K), magnesium (Mg), calcium (Ca), vanadium (V), zinc (Zn), chlorine (Cl), sulphate (SO_4), and carbonate (CO_3). Besides that, the salt compounds that can be found in the seawater are sodium chloride, magnesium chloride, magnesium sulfate, calcium sulfate and potassium chloride and most abundant salt compound are sodium chloride. The seawater also have been used in the medical purpose as one of the treatment to the patient. The treatment called thalassotherapy is a treatment using the seawater either orally and injections, use of spray, pounding the waves, heated seawater bath and combination of electro acupuncture and seawater therapy. Thus, this study is done to compare the effect of the sodium chloride solution and seawater towards the growth of *Staphylococcus aureus* and *Pseudomonas aeruginosa* as skin pathogens. The growth of the skin pathogen are determined using the optical density (OD) measurement in the different concentration of seawater and sodium chloride solution using spectrophotometer at 600nm after incubating the organism in the medium for 24 hours. The paired t-test is used as analysis test to compare the effect of the growth of bacteria based on the result of the OD. The result shows that the OD reading for the sodium chloride solution is lower that the OD reading of the seawater and the data analysis shows that at the concentration 8% shows similarity effect for both solution. Thus, it can be conclude that sodium chloride solution can be an alternative ways in order to inhibit the growth of the skin pathogen rather than seawater and concentration 8% shows an effective concentration to inhibit the organism.

Keywords: Seawater, sodium chloride, thalassotherapy, *Staphylococcus aureus*, *Pseudomonas aeruginosa*