

ABSTRACT

The use of hypochlorous acid can be an alternative antiseptic to alcohol and sodium hypochlorite during a pandemic because hypochlorous acid is non-toxic, non-corrosive, and effective in killing microorganisms. Hypochlorous acid can be made by mixing pure chlorine(Cl) into water(H₂O), but considering that pure chlorine is a toxic substance, it requires a professional to make it because of safety reasons. Therefore, a special tool is needed that can produce hypochlorous acid more safely so that people in general can make it themselves.

Efforts to design a tool to produce antiseptics in the form of hypochlorous acid have previously been carried out, but the method of detecting chlorine levels is still using the manual method using laboratory tests which causes the manufacture of antiseptics to be impractical. Several studies did not even conduct a chlorine test on the antiseptic produced even though the recommended chlorine content is 50 ppm. Therefore, this study aims to design a tool called a water ionizer along with a chlorine detection system for the production of antiseptics in the form of hypochlorous acid with a chlorine content of 50 ppm, where the design in this study is still at the initial design stage.

Tool testing was carried out in two conditions. The first condition, when the tool is calibrated where the electrolysis time is 132 seconds. Electrolysis was carried out with a current of 4 A and a mass of 15 g of salt in 500 ml of water. From the test results, the tool can produce 50 ppm antiseptic with an accuracy of 94.73% and a precision of 99.62%. The second condition, the tool time is not calibrated where the tool only relies on feedback with the electrolysis time set randomly. the tool can produce 50 ppm antiseptic with 80.23% accuracy and 99.556% precision.

Keywords: Water Ionizer, Hypochlorous Acid, Electrolysis, Antiseptic