

# WATER DECOMPOSITION IN SWEET POTATO (IPOMOEA BATATAS L) FLOUR MEDIA

by Isana SYL, Heru Pratomo AI dan Sulistyani

## ABSTRACT

Water molecule splitting into hydrogen and oxygen gas by electrolysis has been known formerly, but the problem of production effectiveness and energy requirement still becomes issues because the production is relatively slight and energy needs is relatively bigger. The utilization of hydrogen as green energy source is undoubtable, as well as the energy produced is relatively high. Therefore, it is a particular challenge to split water molecule effectively and to produce hydrogen gas redundancy with low cost.

Electrolysis effectiveness could be upgrade with various ways, for instance in term of electrode, electrolyte or the media being used. In this study, it had been conducted water electrolysis in sweet potato flour medium and had been studied the effect of sweet potato flour medium against electrocatalyst activity of stainless steel/Fe-Co-Ni and water electrolysis effectiveness. The research method was applying cyclic voltammetry using eDAQ EChem voltameter equipment.

Based on the research, it showed that stainless steel/Fe-Co-Ni electrodes activity is relatively better compared with stainless steel electrode in sweet potato flour medium. If stainless steel was used, on the addition 5 grams of sweet potato flour medium per liter of water, the covering of the electrode would be occurred so the adsorption and desorption of  $H^+$  will be obstructed. While if stainless steel/Fe-Co-Ni was used, on the addition 9 grams of sweet potato flour medium per liter of water, the covering of the electrode would be occurred but hydrogen production was relatively higher and the energy requirement was relatively lower.

Kata Kunci: *water molecule splitting, voltammogram, sweet potato, electrolysis effectiveness*