EFFECTS OF CULTURE CONDITIONS ON GROWTH AND PRODUCTION OF XYLONIC ACID USING RECOMBINANT *E. COLI* BL21 (DE3)

Rafidah Mohamed Ali Hanapiah[1], Rozaimi Abu Samah[2*], Nurul Atikah Mohd Rodzri[3], Mior Ahmad Khushairi Mohd Zahari[4], Wan Salwanis Wan Md. Zain[5]

Faculty of Chemical & Natural Resources Engineering, Universiti Malaysia Pahang, 26300 Kuantan, Pahang, Malaysia

[*]*Corresponding author: rozaimi@ump.edu.my*

[*]*Contact: +60- 95492830*

Abstract

Xylonic acid is one of the top 30 highly valuable chemicals that can be obtained by microbial conversion. One of the recently used microorganisms to produce xylonic acid from xylose is the recombinant *Escherichia coli*. In this study, the effect of medium and nitrogen source concentration on the growth of the recombinant *E. coli* BL21 (DE3) and xylonic acid production were investigated. The fermentation was carried out in shake flasks for 24 h at 37 °C and 200 rpm. Hydroxamate analysis was performed to determine the concentration of xylonic acid. The recombinant *E. coli* BL21 (DE3) produced up to 8.69 g/L xylonic acid with yield of 0.86 g/g from 10 g/L xylose in SOB medium with 20 g/L tryptone and 5 g/L yeast extract.

Keywords: Xylonic acid, Recombinant *Escherichia coli*, Xylose, SOB Medium

Area of research: Fermentation, Biochemistry, Organic acid