

Conversion of Crude Glycerol by using electrochemically active strain, *Klebsiella Pneumoniae* L17 with Zero-Valent Iron (ZVI)

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1,3- PDO (1,3-Propandiol) is a highly value added product which is widely used as adhesives, laminates and food additives. For efficient production of 1,3-PDO, sustainable and non-toxic regeneration of NADH is of great importance. ZVI can provide reducing equivalent for 1,3-PDO synthesis from glycerol as an electronic donor. *Klebsiella Pneumoniae* has 1,3-PDO production pathway from glycerol, and has been extensively investigated as exoelectrogens. In this study, we attempt to produce 1,3-PDO from un-purified crude glycerol produced from biodiesel process by using a electrochemically active strain, *K. pneumoniae* L17 and neutral red(NR) as a mediator. The results showed significant increase of 1,3-PDO production using the ZVI. Interestingly, the difference between crude and pure glycerol in production of 1,3-PDO was not significant. It seems that unidentified component in a crude glycerol may bring synergetic effects for both cell biomass and 1,3-PDO production. These results implicate that ZVI can regulate the bioconversion of electroactive strain such as L17, therefore improve crude glycerol conversion into value-added platform chemicals.