

Oxidized Carbon Reduction in Microbiological System using Electrode

김중래[†], 임채호, Ganapathiraman Munussami, 송영은

부산대학교

(j.kim@pusan.ac.kr[†])

Biological system for production of value added bio-products from carbon dioxide was introduced in this work. The source of biological system is municipal waste which involved lots of species of microorganism and potential source of green technology. Furthermore, to reduce cost in this system, electrochemical method suggested that replacement of hydrogen through H₂ - type bio-electrochemical system contained electrode set up. The preliminary studies shows that Reductive reaction in microorganisms to produce organic compounds from oxidized carbon like carbon dioxide and carbon monoxide depends on amount of reducing equivalents and proper level of reducing potential. The representative reductive pathway like Wood-Ljungdhal pathway and reductive TCA cycle is in need of carbon dioxide as carbon source and NADPH and ATP as reducing equivalents. In further studies to compensate these reducing potential source, other factors would be considered to improve the rate of reductive reaction.