

Fe, Mg, Mn or Zn Supplementation for Rapid Fertilization of Phenol-contaminated Soil Using *Corynebacterium glutamicum*

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Corynebacterium glutamicum, a Gram-positive soil bacterium which is widely used for the industrial production of amino acids, was reported to assimilate various mono-cyclic aromatic compounds, such as phenol and benzene. In this study, *C. glutamicum* was cultured in a mineral salt medium containing 1% yeast extract without any additional carbon sources and various minerals of Fe, Mg, Mn and Zn as supplementation. It was found that amino acid was synthesized by degradation of aromatic compounds through HPLC and GC, respectively. In addition, confirming the useful amino acids synthesized in soil was conducted by root elongation. This result indicated that Fe supplementation was shown the most optimal components to convert useful amino acids from phenol in soils. In addition, in the case of Fe supplementation, root elongation using oat was displayed less toxicity in *C. glutamicum* or with mineral supplementation treated sample than untreated sample. Therefore, this work suggests that *C. glutamicum* can be applied to the environment-benign fertilization technology for aromatic compounds-contaminated soils.