

Figure S1. Changes in total soluble concentrations of La (a), Al (b) and Ni (c) during chemical leaching of spent FCC catalysts using 2 M H<sub>2</sub>SO<sub>4</sub> (■) or 2 M HCl (▲).

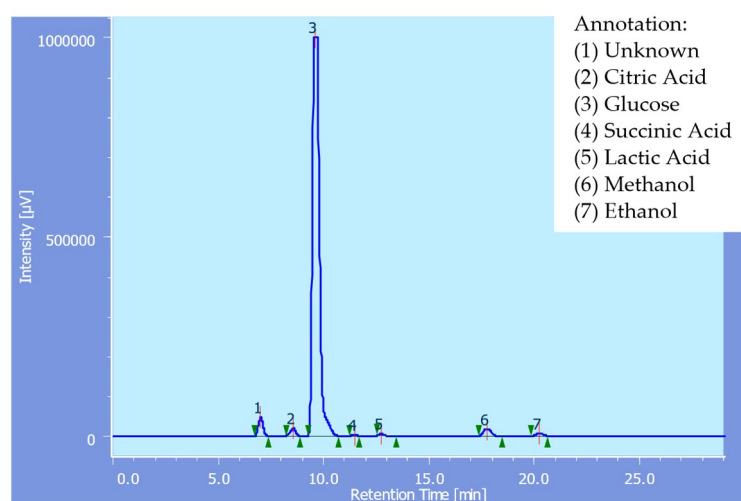


Figure S2. HPLC result of biogenic acids produced by *A. niger* WU-2223L (2-times dilution; at 240 hours) under the initial conditions of;  $1 \times 10^7$  spores/mL, 120 g/L glucose; pH 3.0. Compared to Figure S4(a) (initial spore density of  $1 \times 10^6$  spores/mL was used instead of  $1 \times 10^7$  spores/mL), production of ethanol was confirmed while that of citric acid was greatly suppressed.

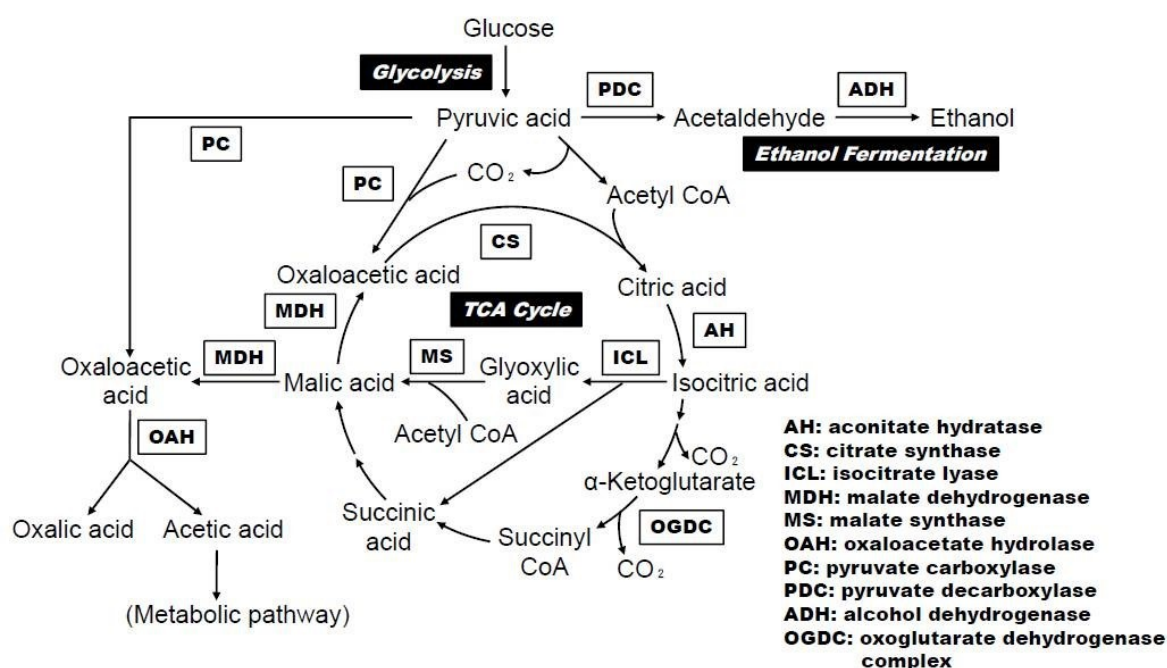


Figure S3: Metabolic reaction network of *A. niger* for fermentation of citric acid, oxalic acid and ethanol from glucose. (adapted and modified from [34].) The addition of methanol in fungal media was reported to increase the citric acid production via repression of 2-oxoglutarate dehydrogenase [31].

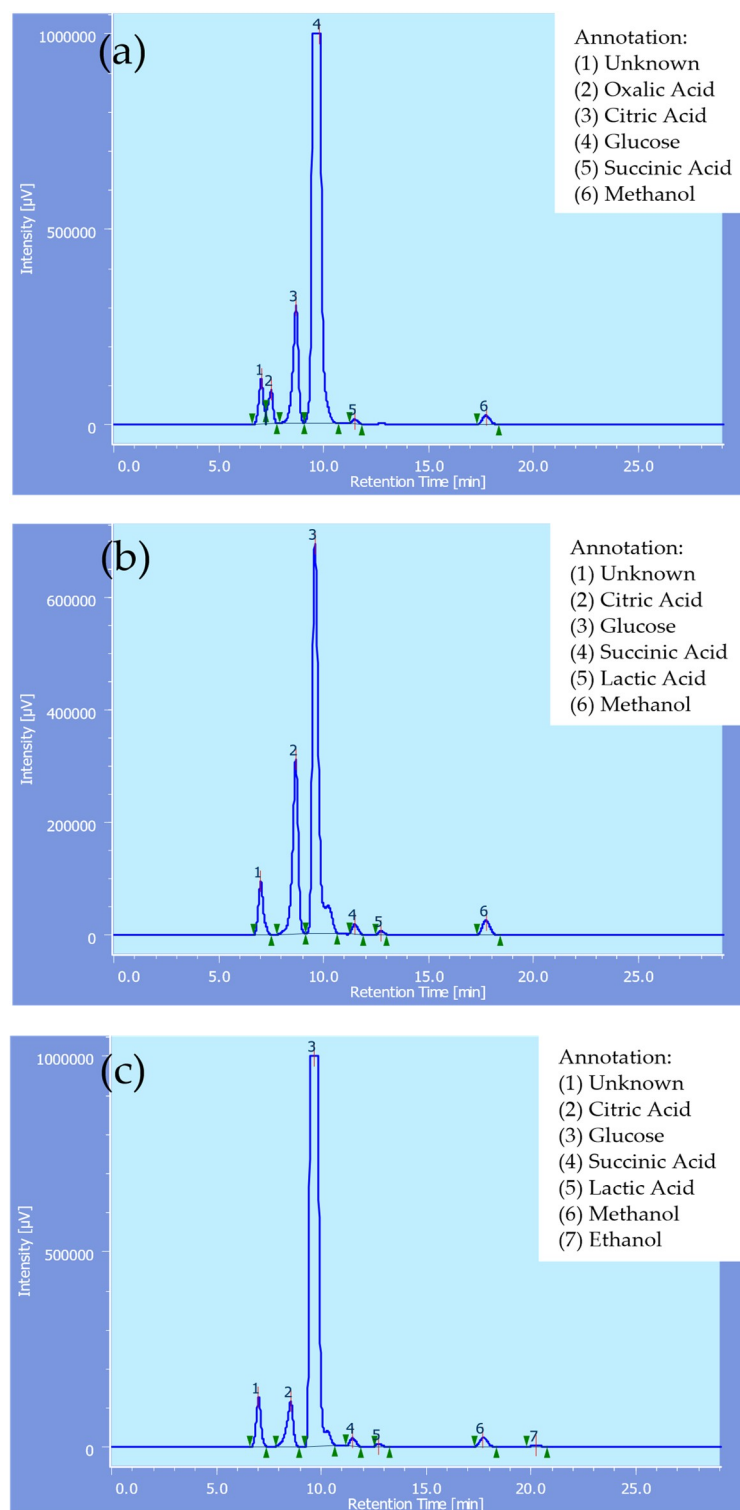


Figure S4: HPLC results of biogenic acids produced by *A. niger* WU-2223L (without dilution; at 340 hours) under different initial conditions; (a) glucose 120 g/L, pH 3.0, (b) glucose 60 g/L, pH 3.0, (c) glucose 120 g/L, pH 2.0. The initial spore density was set to  $1 \times 10^7$  spores/mL in all cases.