

Screening carbon and nitrogen source for the production of amino levulinic acid by recombinant *Escherichia coli* expressing *asuD2*

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5- Aminolevulinic acid (ALA), an intermediate in heme biosynthesis, has medical applications for cancer and tumor diagnosis. Recently, it was suggested that *asuD2* gene in asukamycin biosynthetic gene cluster of *S. nodosus* encodes aminolevulinic acid synthase by bioinformatic study and complementary experiments. We constructed recombinant *Escherichia coli* expressing *asuD2* gene and found that this strain produced 90 mg/L of ALA in M9 medium supplemented with 20 g/L of glycerol, 5 g/L of glycine and 10 g/L of succinic acid in previous study. In this study, we aimed to further improve the ALA production by this recombinant *Escherichia coli*. Several media (LB, 2YT, TB, and M9) supplemented with glycerol, glycine and succinic acid were tested. The effect of nitrogen sources (yeast extract, peptone, casamino acid, corn steep liquor, and NH₄Cl) was examined at different concentrations. The effect of carbon sources (glucose, glycerol, maltose, lactose, starch) was also examined at two different concentrations. It was observed that the highest amount of ALA was produced in M9 than other complex media. The ALA production increased by supplementing 10 g/L of corn steep liquor additionally.