

Photosynthetic Production of Various Organic Acids in *Rhodobacter sphaeroids* MBTLJ-8 under Different Light Conditions

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A purple nonsulfur photosynthetic bacteria, *Rhodobacter sphaeroides*, through the Calvin reductive pentose phosphate pathway by ribulose 1,5-bisphosphate carboxylase/oxygenase, can produce organic compounds such as sugar, amino acid, nucleic acid, vitamin and bio-active substances from carbon dioxide. Therefore, this study is focused on the production of amino acids under different light conditions in *Rhodobacter sphaeroides* wild type and mutant type (MBTLJ-8), and the impact on physiological activation of other microorganisms by various compositions of organic compounds produced from *R. sphaeroides* wild type and MBTLJ-8. In this result, the high content of various amino acids in mixed organic compounds could be obtained from the MBTLJ-8 mutant strain, comparing to wild type, In addition, the addition of the mixed organic compounds into culture media of *Escherichia coli* BL21 gave the effect on the enhancement of growth rate of *E. coli*. Therefore, MBTLJ-8 provides the strong evidence that photosynthetic production of mixed organic compounds have the functional potential to increase the physiological activity of other organisms.