

Odd-Ball Biosynthesis of Polyhydroxyalkanoate by Amplification of *tal* Gene on Pentose Phosphate Pathway in *Wautersia eutropha*

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Abstract

A cloned *tal* gene encoding transaldolase(TA), the critical enzyme in the non-oxidative pentose phosphate(PP) pathway, was reinforced into the *Wautersia eutropha* for metabolic flux control of carbohydrate for the odd-ball biosynthesis of poly- β -hydroxybutyrate [PHB] and its copolymer poly(3-hydroxybutyrate- co-3-hydroxyvalerate)[P(3HB-3HV)]. The content and rate of PHB biosynthesis significantly increased up to 19.3 % and 1.6-folds, respectively, after the transformation of *tal* gene, due to the active supplementation of the precursor molecules, acetyl-CoA and NADPH. Also, the P(3HB-3HV) biosynthesis was more accelerated in transformant *W. eutropha* TAL than parent strain, meanwhile, the molar fraction of 3HV in P(3HB-3HV) did not influenced by amplification of *tal* gene.

References

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