# A Thermostable Phenylalanine Hydroxylase from Xanthomonas campestris：Molecular Cloning and Enzymatic Characterization


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**ABSTRACT**

Medical treatment for Parkinson ’ s disease (PD) is using the chemical synthesis L-dopa, however, lead to many side effects. Many scientists are focusing on gene therapy and stem cell research to reconstruct the amount of aromatic amino acid decarboxylase (AADC) in the brain or rebuild the substantia nigra, but these therapies are still on the animal experimental phase. In this transition period, natural biosynthetic L-dopa becomes a researchable direction. Phenylalanine hydroxylase converts phenylalanine to tyrosine, and tyrosine hydroxylase keeps transferring to L-dopa. This research focuses on the molecular cloning and characterization of phenylalanine hydroxylase from Xanthomonas campestris pv. campestris 17. Data show that the open reading frame of phenylalanine hydroxylase is 891 bp. The translation product is composed of 296 amino acids with a molecular weight about 33 kDa with the optimal pH and temperature of 6.8 and 50℃, respectively. It is a non-heme iron(II) dependant enzyme, but it doesn ’ t have tyrosine and tryptophan hydroxylase activities.



Keywords : phenylalanine hydroxylase ; Xanthomonas campestris pv. campestris


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