Supplementary Materials:

Role of N-terminal Extensional Long α-Helix in the Arylesterase from *Lacticaseibacillus rhamnosus* GG on Catalysis and Stability

Table S1. PCR primers used for cloning of the arylesterase LggEst wild type and deleted mutant into the plasmid pET-28a.

Primer name	Primer sequence (5' → 3')
LggEst-wild type-F	AACTTTAAGAAGGAGATATACCATGGCAGATGAAGAGGCAATGTTGGCAA
LggEst-wild type-R	GGATCTCAGTGGTGGTGGTGGTGGTGTTCAAATTCGTTTTCTTCAGCTTGA
pET28a-LggEst-wild type-F	TCAAGCTGAAGAAAACGAATTTGAACACCACCACCACCACCACTGAGATCC
pET28a-LggEst-wild type-R	TTGCCAACATTGCCTCTTCATCTGCCATGGTATATCTCCTTCTTAAAGTT
LggEst-deleted mutant-F	AACTTTAAGAAGGAGATATACCATGCGGGTACCGGAAGATGTTCATTGGG
LggEst-deleted mutant-R	GGATCTCAGTGGTGGTGGTGGTGGTGTTCAAATTCGTTTTCTTCAGCTTGA
pET28a-LggEst-deleted mutant-F	TCAAGCTGAAGAAAACGAATTTGAACACCACCACCACCACCACTGAGATCC
pET28a-LggEst-deleted mutant-R	CCCAATGAACATCTTCCGGTACCCGCATGGTATATCTCCTTCTTAAAGTT

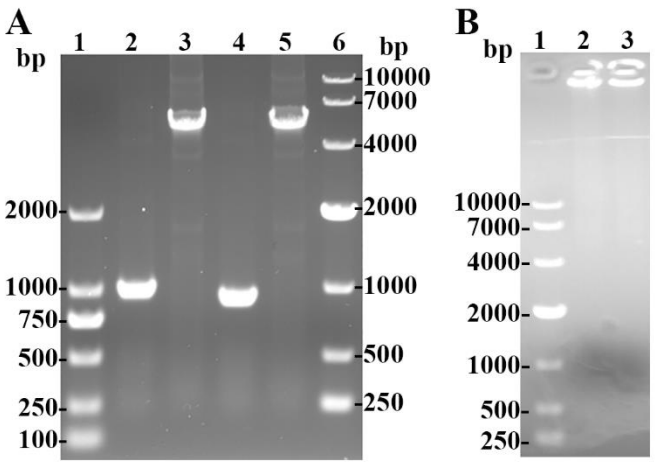

Figure S1. Gene cloning of the arylesterase LggEst wild type and deleted mutant. (A) Agarose gel for PCR products of the genes LggEst wild type and deleted mutant, and the plasmid pET-28a. Lane 1, DNA ladder; Lane 2, PCR product of the gene LggEst wild type; Lane 3, PCR product of the plasmid pET-28a for cloning of the gene LggEst wild type; Lane 4, PCR product of the gene LggEst deleted mutant; Lane 5, PCR product of the plasmid pET-28a for cloning of the gene LggEst deleted mutant; Lane 6, DNA ladder. (B) Agarose gel for POE-PCR products of cloning of LggEst wild type and deleted mutant into pET-28a. Lane 1, DNA ladder; Lane 2, POE-PCR product of cloning of LggEst wild type; Lane 2, POE-PCR product of cloning of LggEst deleted mutant.

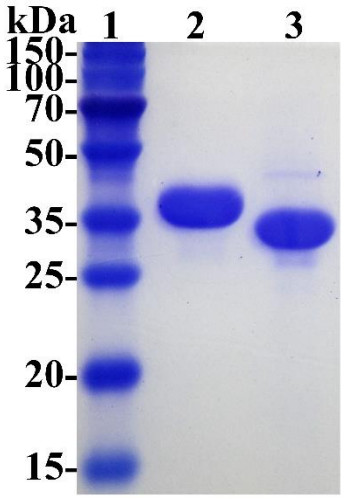

Figure S2. SDS-PAGE (15%) for purification of recombinant LggEst wild type and the deleted mutant in *E. coli*. Lane 1, protein marker; lane 2, the purified LggEst wild type; lane 3, the purified LggEst deleted mutant. Molecular mass of recombinant LggEst wild type and deleted mutant containing the C-terminal $(His)_6$ tag is 36.6 kDa, and 33.5 kDa, respectively.

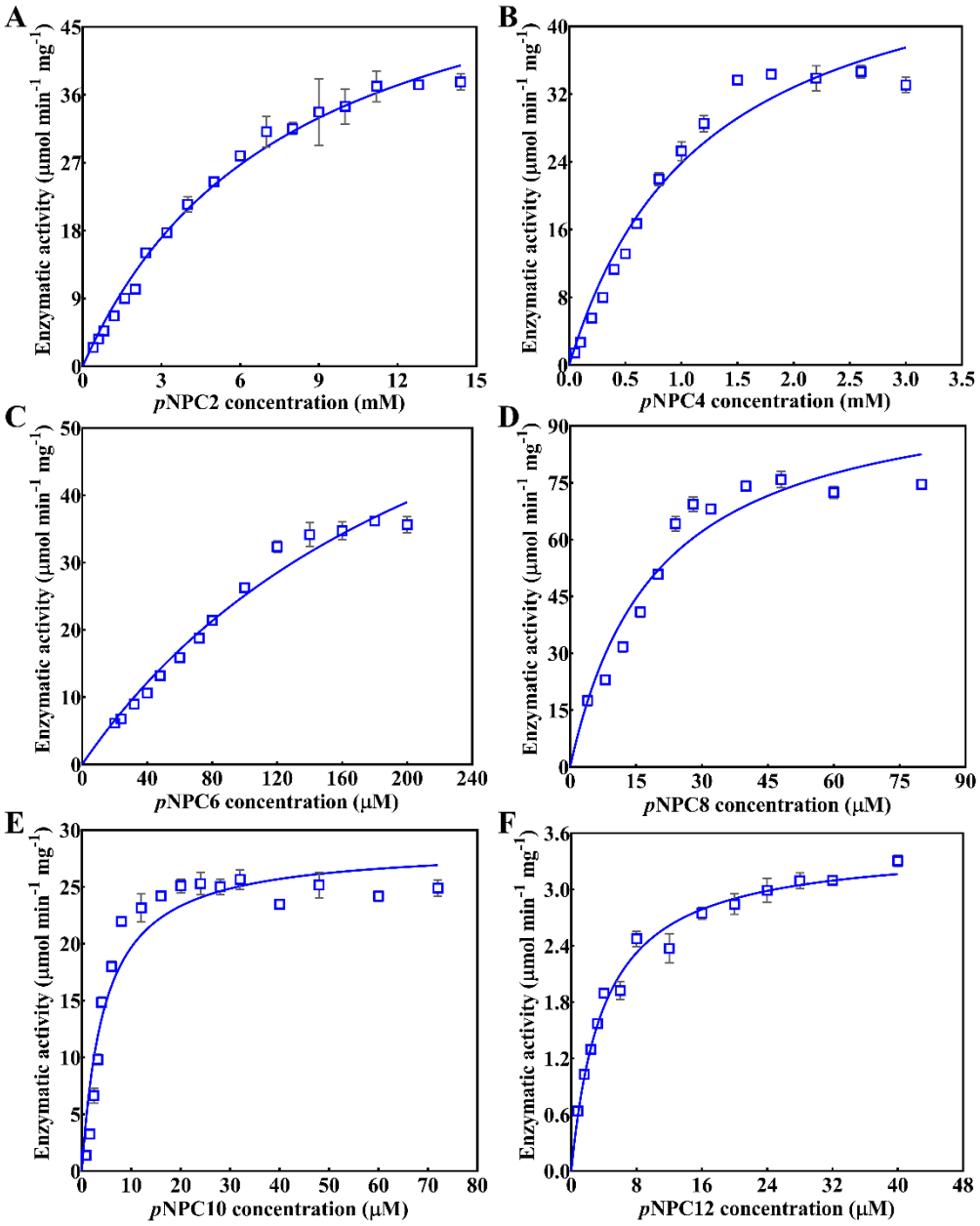

Figure S3. Michaelis-Menten kinetic plots for arylesterase LggEst wild type on the hydrolysis of the *p*-nitrophenyl esters.

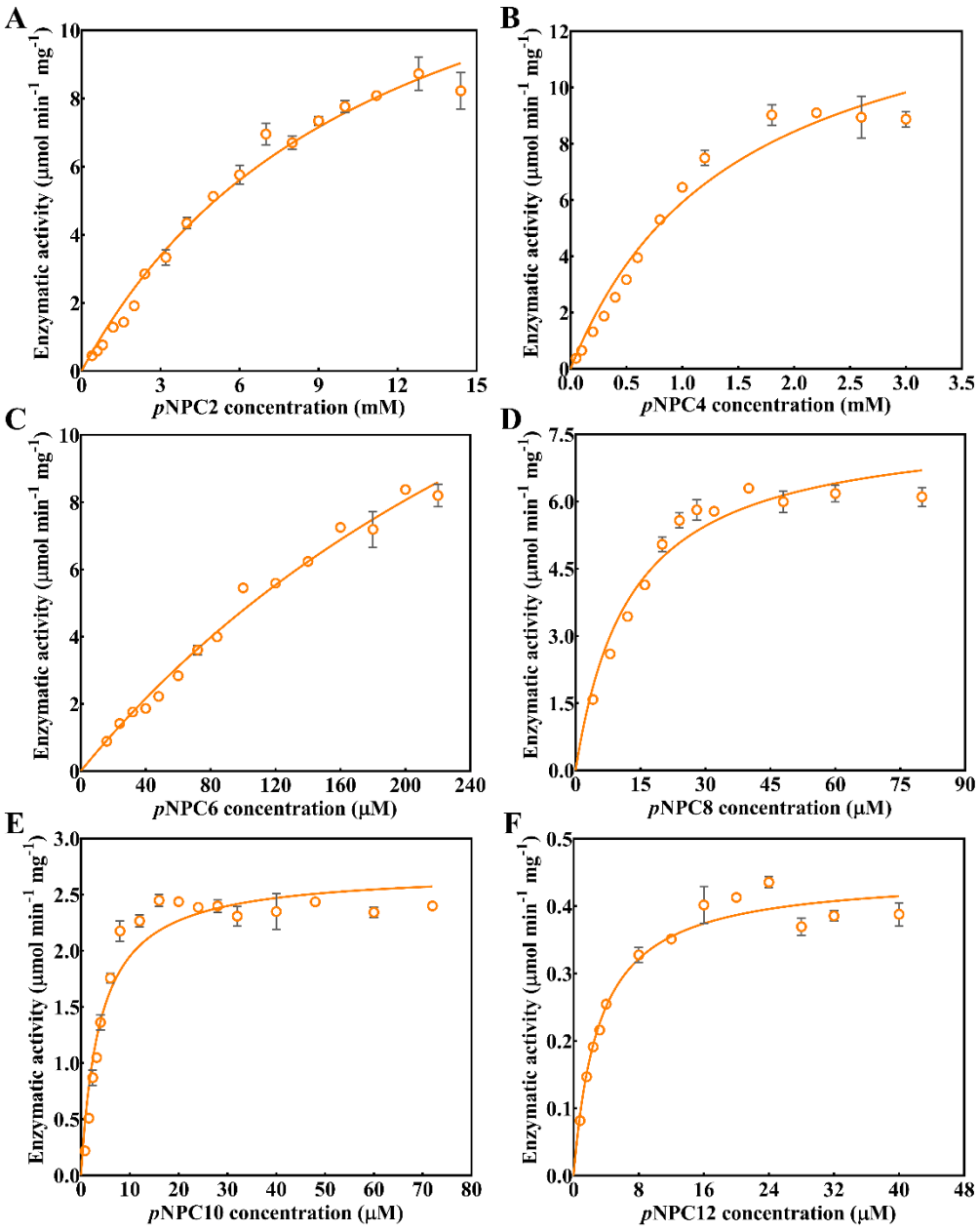

Figure S4. Michaelis-Menten kinetic plots for arylesterase LggEst deleted mutant on the hydrolysis of the *p*-nitrophenyl esters.