Supporting Information

Immobilization of a novel EST_{BAS} esterase from *Bacillus altitudinis* onto an epoxy resin: Characterization and its regioselective synthesis of chloramphenicol palmitate

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Section A: Characterization of Lx-Est$_{BAS}$ΔSP by SEM

The epoxy resin Lx-105s surface before and after covalent binding of free Est$_{BAS}$ΔSP was observed using scanning electron microscopy (SEM). The surface morphologies of Lx-105s are shown in Figure S1. Figure S1a, b, c, show the resin surface before covalent binding of Est$_{BAS}$ΔSP at magnifications of ×100, ×500, and ×15 k, respectively. Figure S1d, e, f, depict the surfaces after covalent attachment with the same magnifications. Prior to immobilization, the surfaces were quite smooth (×100, ×500) and close-knit (×15 k) (Figure 4a, b, c). After immobilization, the surface looked almost unchanged and there were no other attachments on the surface at lower magnifications (×100, ×500, Figure S1d, e), however, it became loose and uneven at higher magnifications (×15 k, Figure S1f). The surface morphology confirmed that the enzyme was immobilized to the resin by chemical adsorption rather than physical adsorption. The changes in the surface morphology confirmed that lipase immobilization to the resin was caused by reactions between the enzyme and epoxy groups.

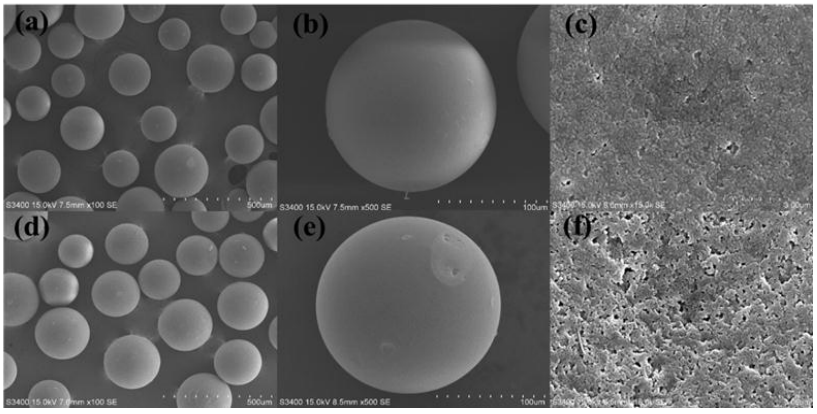

Figure S1. SEM of the surface of epoxy resin Lx-105s before (a, b, c) and after (d, e, f) immobilization of Est$_{BAS}$ΔSP. Magnification: a, d×100; b, e ×500; c, f ×15 k.

Section B: NMR spectra of chloramphenicol palmitate

Synthesis of chloramphenicol palmitate from vinyl palmitate and chloramphenicol was catalyzed by free $Est_{BAS}\Delta SP$ and Lx-$Est_{BAS}\Delta SP$ in acetone. The products were purified by thin layer chromatography (TLC) and silica gel chromatography, and characterized by NMR (Figure S2).

(a)

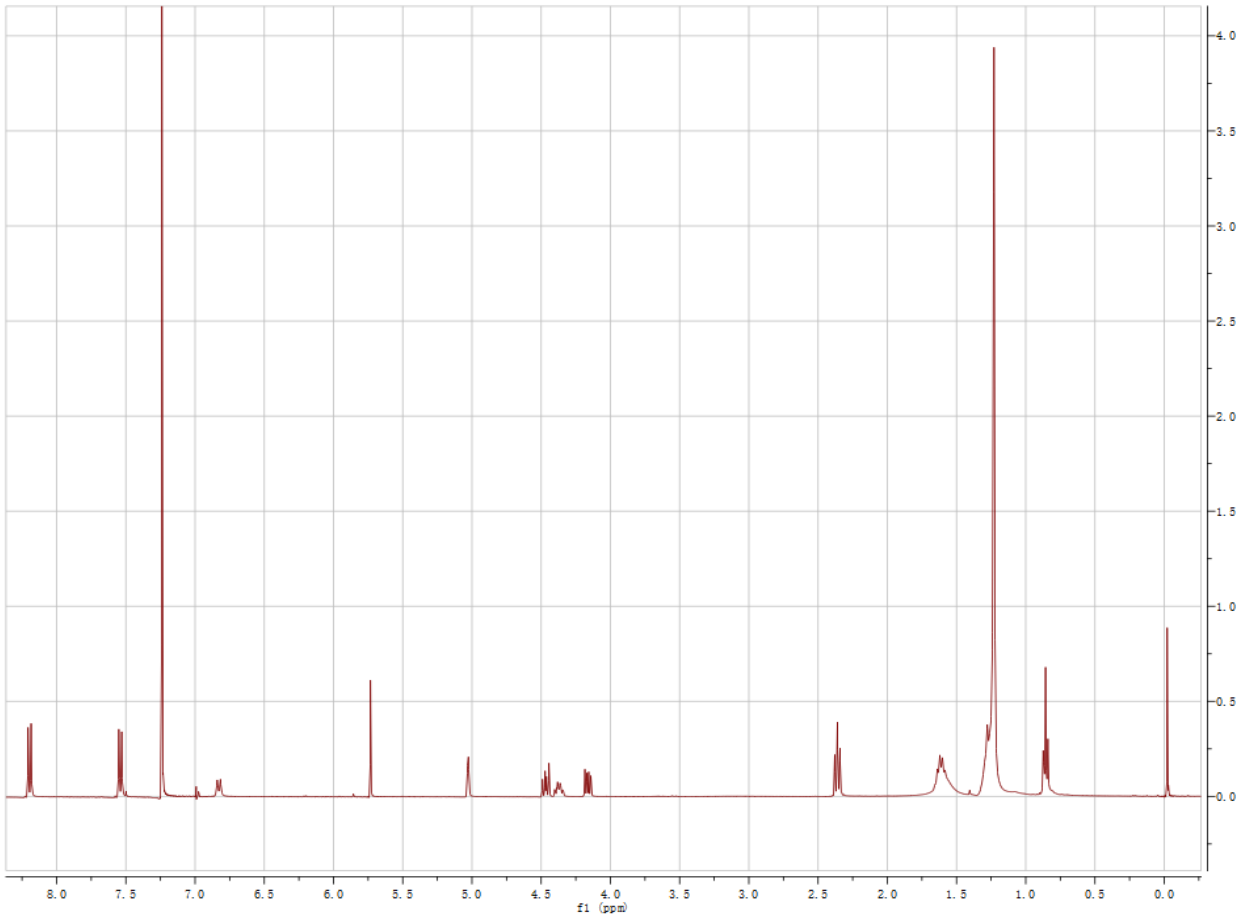

Figure S2. (a) ^{1}H-NMR spectrum of chloramphenicol palmitate in $CDCl_3$.

(b)

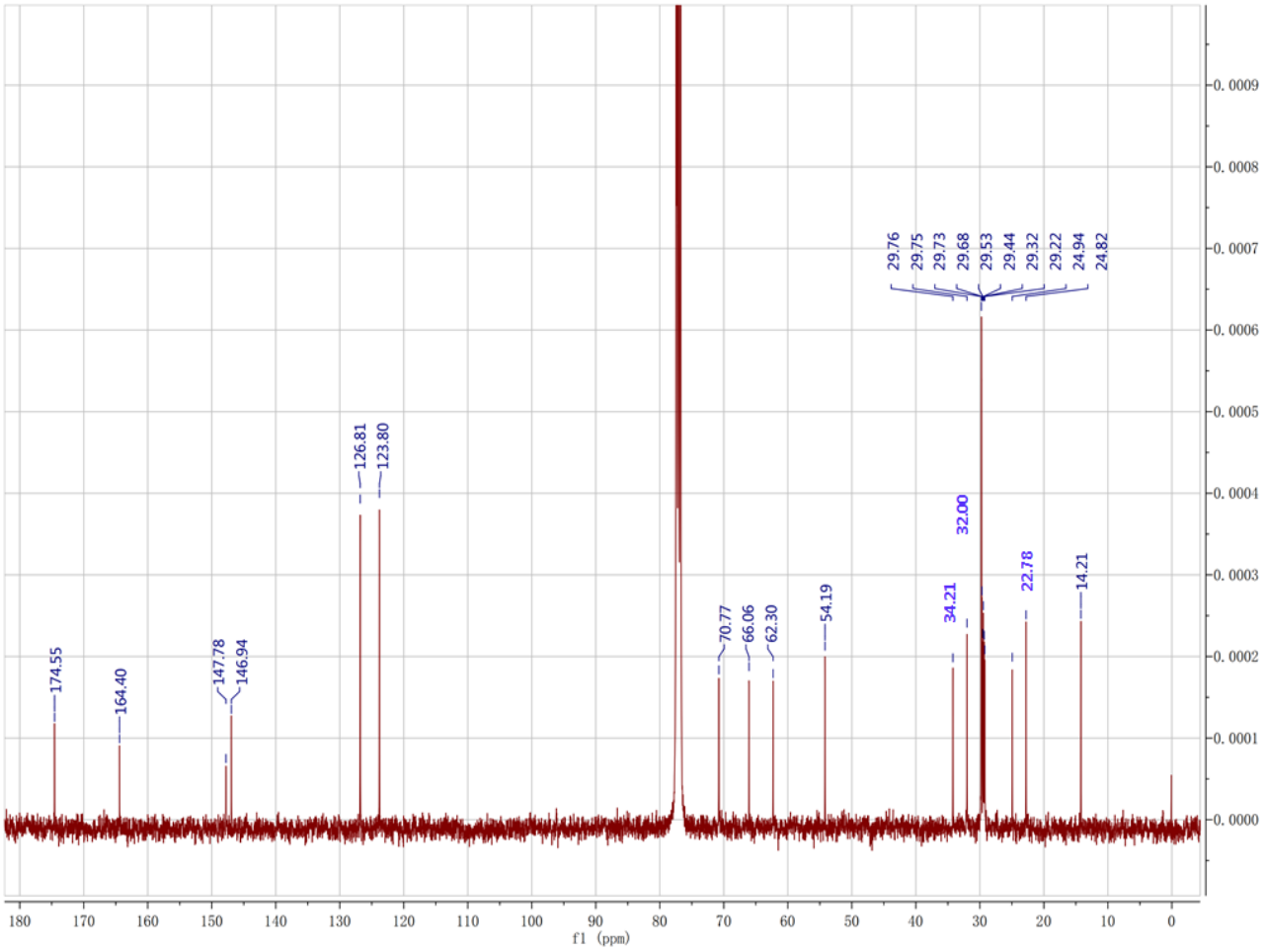

Figure S2. (b) ^{13}C-NMR spectrum of chloramphenicol palmitate in $CDCl_3$.