Supporting Information

Adsorptive removal of Ni(II) ions from aqueous solution and the synthesis of a Ni-doped ceramic: An efficient enzyme carrier exhibiting enhanced activity of immobilized lipase

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**Fig. S1.** The Removal efficiency of Ni$^{2+}$ controlled by the volume ratio of chitosan/TPP.

**Fig. S2.** Photograph of the process of Ni$^{2+}$ removal. 1.0 % (w/w) chitosan concentration, 1:1 of the mass ratio of chitosan/TPP at 10 $^\circ$C.
Fig. S3. FT-IR spectrums of chitosan nanoparticle and chitosan nanoparticle containing Ni$^{2+}$
during the removal process of Ni$^{2+}$.

Fig. S4. Schematic of histidine residues on lipase surface (lipase from porcine pancreas)
Fig. S5. The loading amount of lipase with increasing lipase concentrations

Fig. S6. The accumulative loss of lipase from Ni-CP to aqueous solution during the recycling use