# 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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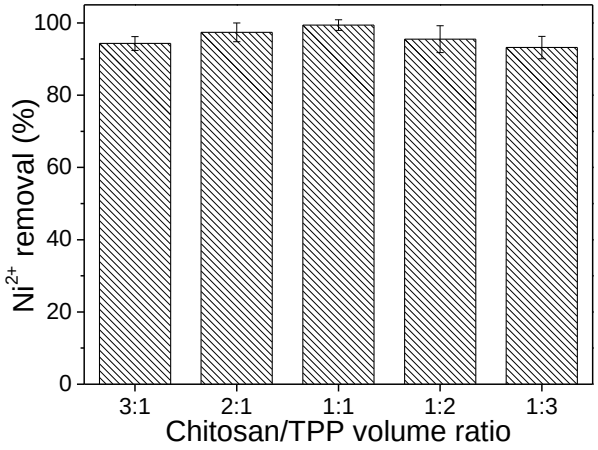


**Fig.S1.** The Removal efficiency of $Ni^{2+}$ controlled by the volumn ratio of chitosan/TPP.

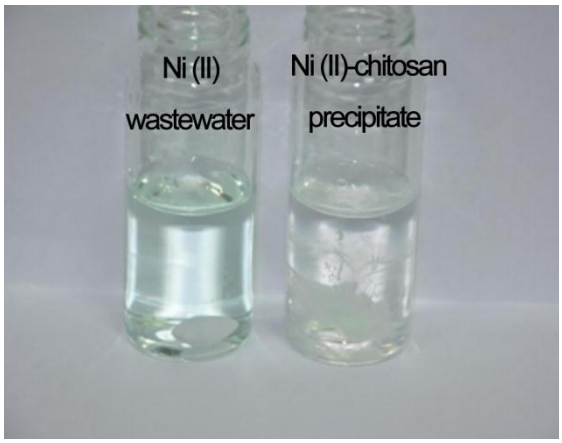


**Fig.S2.** Photograph of the process of $Ni^{2+}$ removal. 1.0 % (w/w) chitosan concentration, 1:1 of the mass ratio of chitosan/TPP at 10 $^{o}$C .

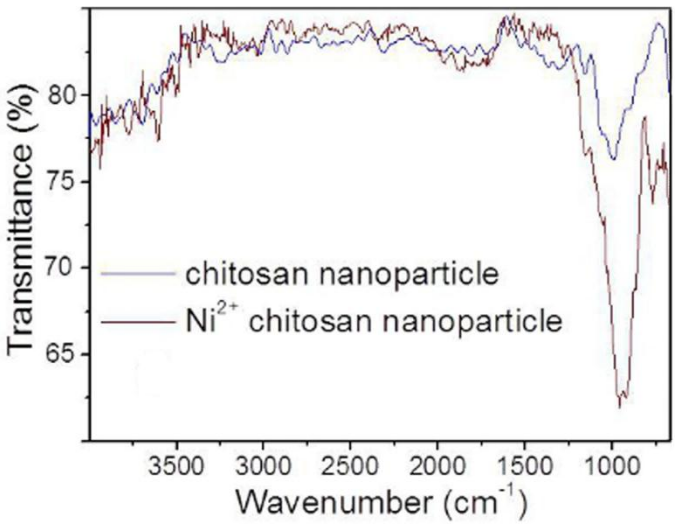


**Fig.S3.** FT-IR spectrums of chitosan nanoparticle and chitosan nanoparticle containing $Ni^{2+}$ during the removal process of $Ni^{2+}$.

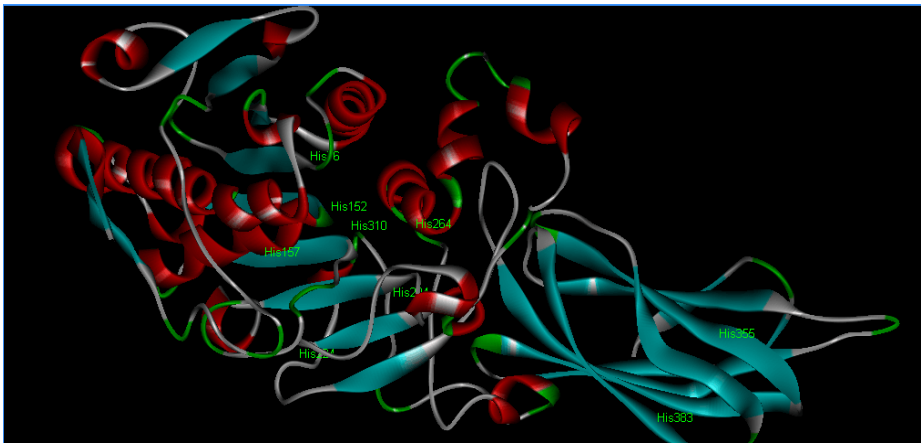


**Fig.S4.** Schematic of histidine residues on lipase surface (lipase from porcine pancreas)

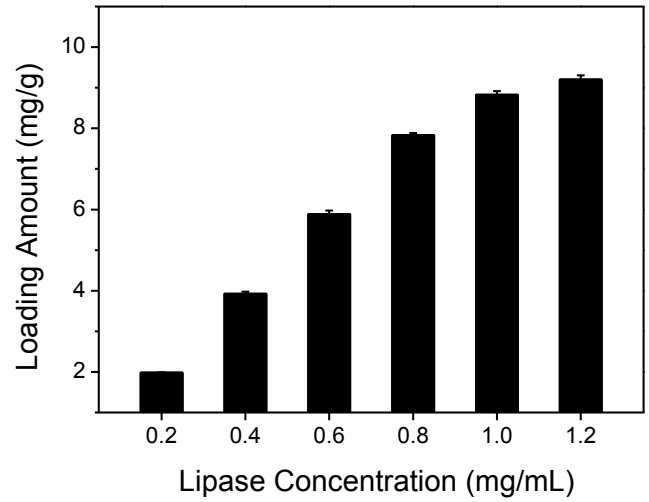


**Fig.S5.** The loading amount of lipase with increasing lipase concentrations

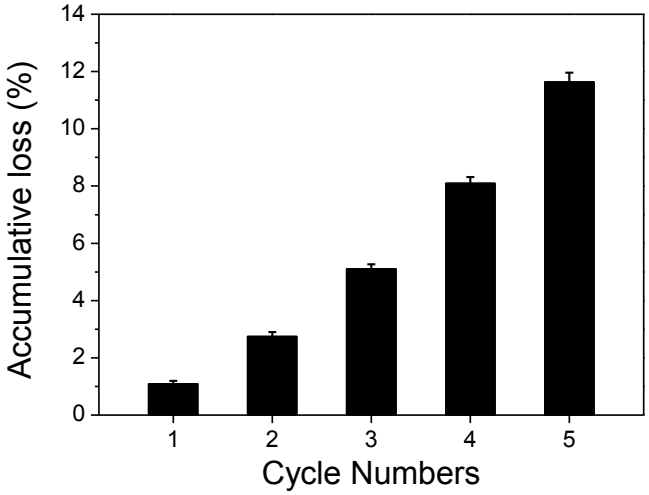


**Fig.S6.** The accumulative loss of lipase from Ni-CP to aqueous solution during the recycling use