

Supplementary information

Comparative Structure Activity Relationship for Heterogeneous Phosphatase-like Catalytic Activities of One-Dimensional Cu(II) Coordination Polymers

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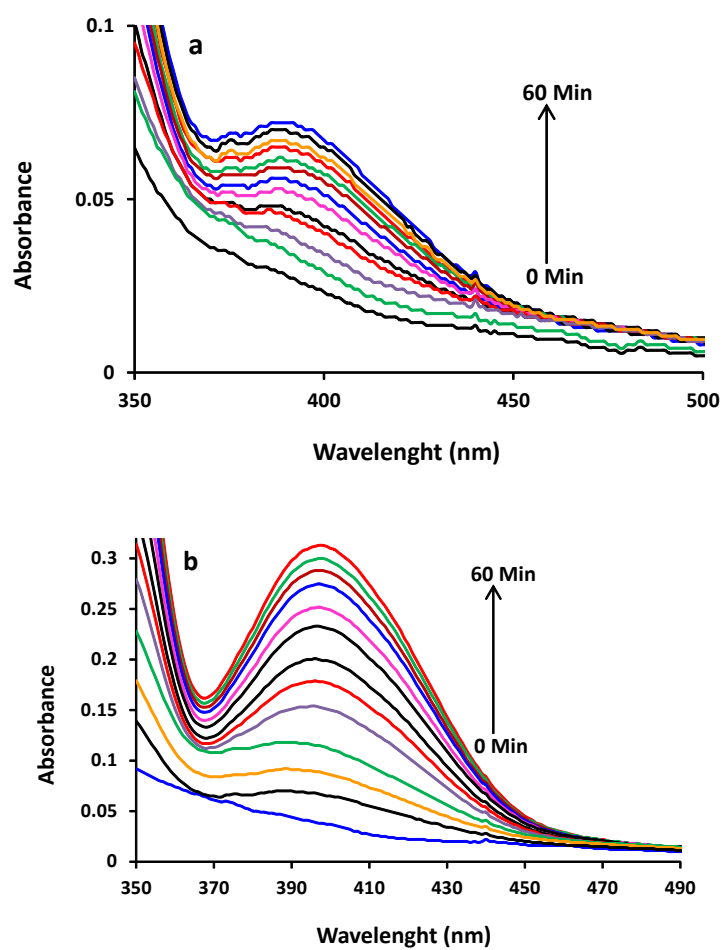


Fig. S1 Absorption spectra for the transesterification of HPNP (100 μM) in the absence and presence of (a) complex 2 and (b) complex 3 (50 μM) in 10% MeOH recorded at an interval of 5 minutes at 30°C.

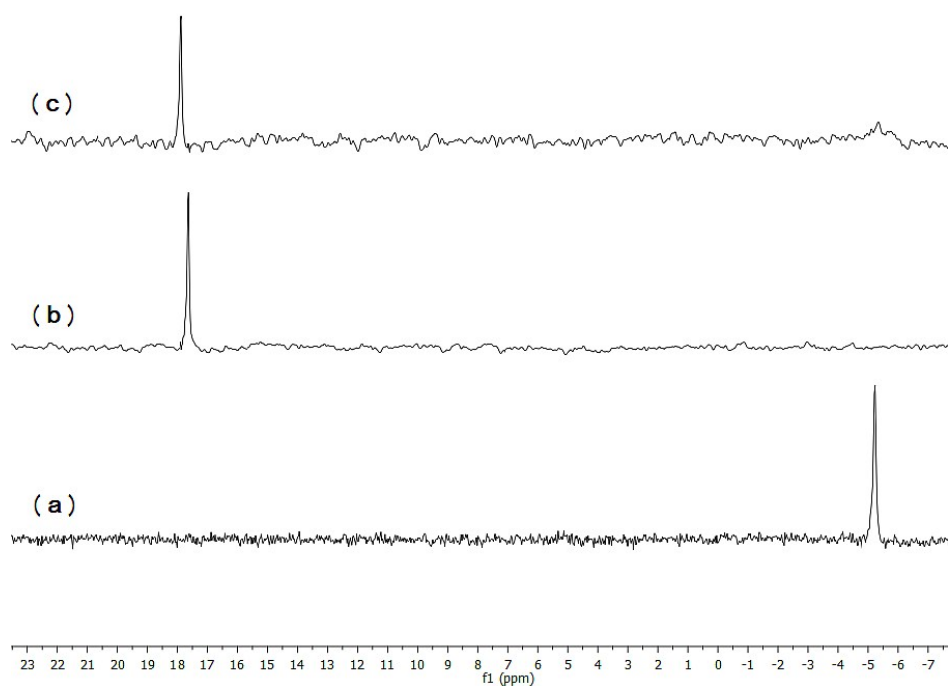


Fig. S2 ^{31}P NMR of (a) substrate (HPNP), (b) synthesised cyclic phosphate (glycero-1,2-cyclic phosphate) and (c) substrate- catalyst reaction mixture in $\text{D}_2\text{O}/\text{DMSO-}d_6$ mixture (70:30).

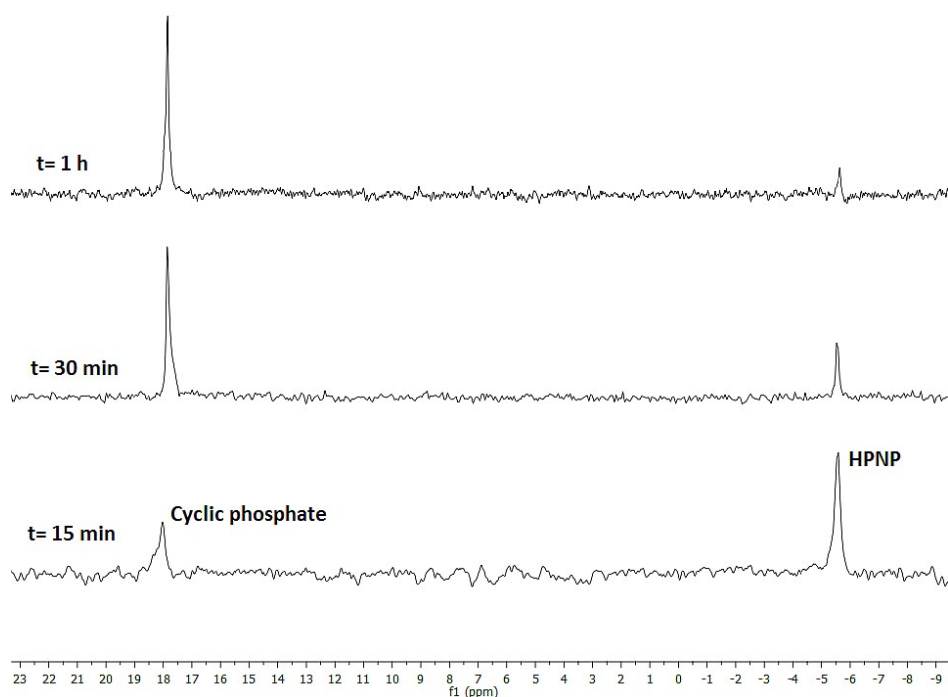


Fig. S3. Time dependent ^{31}P NMR spectra for HPNP hydrolysis by complex 1, in $\text{D}_2\text{O}/\text{DMSO-}d_6$ mixture (70:30), $[\text{HPNP}] = 0.1\text{ mM}$ and $[\text{Complex}] = 0.25\text{ mM}$.

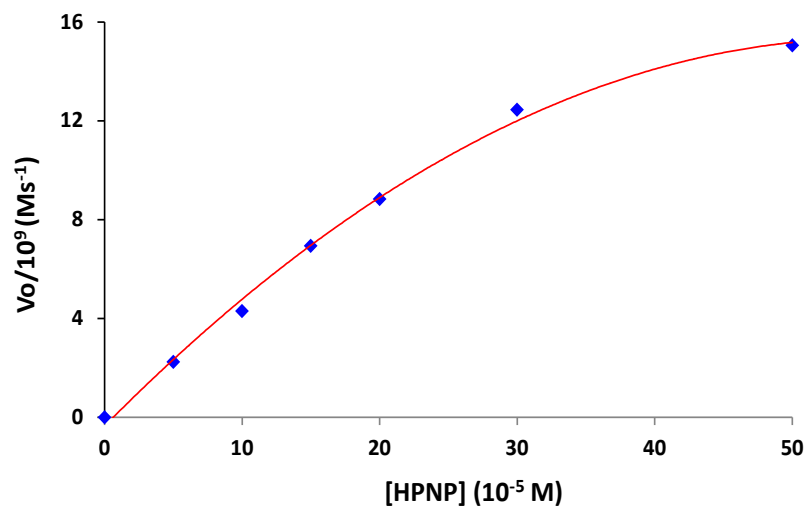


Fig. S4 Dependence of rate of reaction on substrate concentration (50-500 μ M) for complex **3** (50 μ M) at 30 $^{\circ}$ C in 10% MeOH.

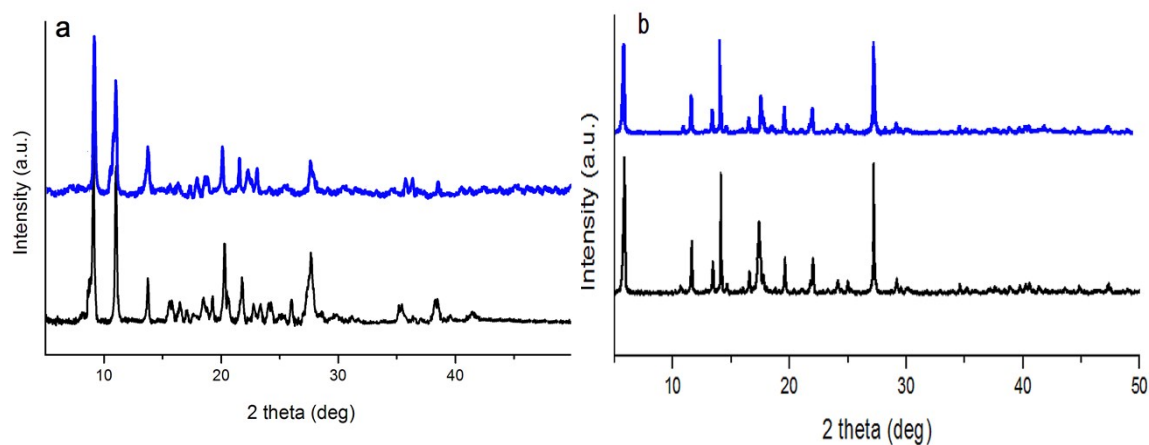


Fig. S5 PXD patterns of (a) **1** and (b) **3** before catalytic experiments (black coloured) and after third cycle of catalytic experiments (blue coloured)

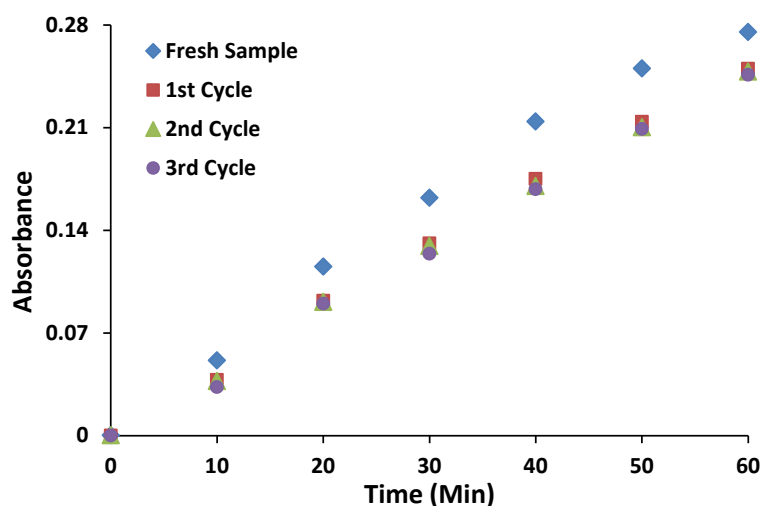


Fig. S6 Reusability of complex **3** for repeated HPNP phosphate ester bond cleavage experiments.

Table S1 Phosphotase like activities from reported complexes

Complex	Substrate	Conditions	K_{cat} (s^{-1})	Reference
$[Ni_2L(H_2O)_4]4H_2O \cdot 2ClO_4$	4-NPP	acetonitrile–water (2.5% (v/v), 25° C	3.5×10^{-4}	S1
$[Zn(bpy)Cl_2]$	BNPP	water, 25 °C	5.7×10^{-7}	S2
$[Zn_2(L_2)-(\mu-O_2CMe)_2(MeCN)_2][PF_6]$	HPNP	MeOH-H ₂ O (33%, v/v), 30° C	3.44×10^{-4}	S3
$[Zn_2(L)(H_2O)_2]$	3',5-UpU	water, 25 °C	2.8×10^{-5}	S4
$[Cu_2(H_2pat^1)-(\mu-OH)(H_2O)_2]$	BDNPP	H ₂ O : MeCN : MeOH = 50 : 45 : 5, 25 °C	3.95×10^{-3}	S5
$Zn_2(bpmp)(\mu-OH)(ClO_4)_2$	HPNP	DMSO-H ₂ O (30%, v/v), 25° C	6.4×10^{-4}	S6
$\{[Cu_3(L^1)(NO_3)_2(DMF)(H_2O)] \cdot 3(DMF)\}_n$ (1)	HPNP	MeOH-H ₂ O (10%, v/v), 30° C	9.6×10^{-3}	Present work

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