Supporting Information

Study on catalytic activity of polypeptides toward hydrolysis of glucoside compounds gastrodin, polydatin and esculin

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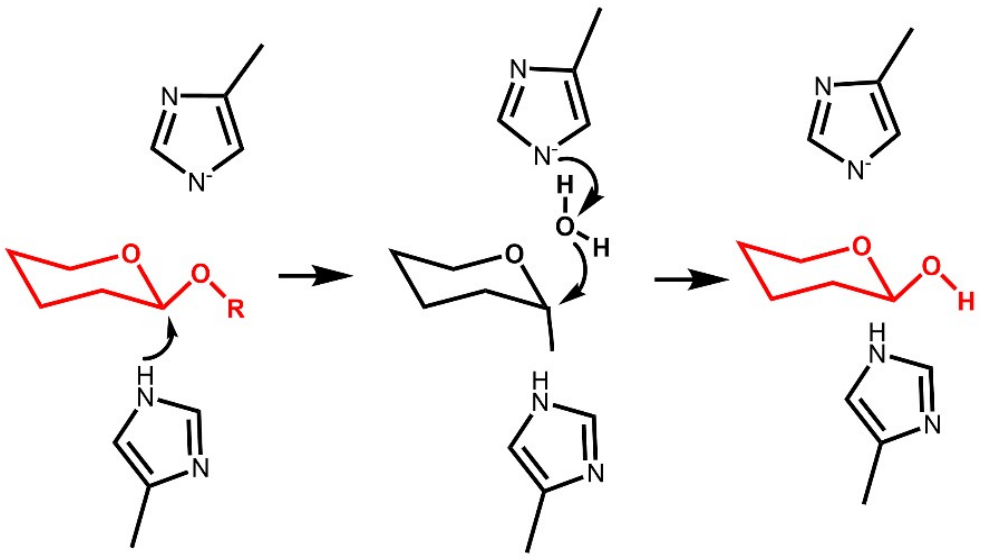

Scheme.S1. Schematic representation showing the mechanism of acid-base couple catalysis in the designed glycoside hydrolases with histidine.

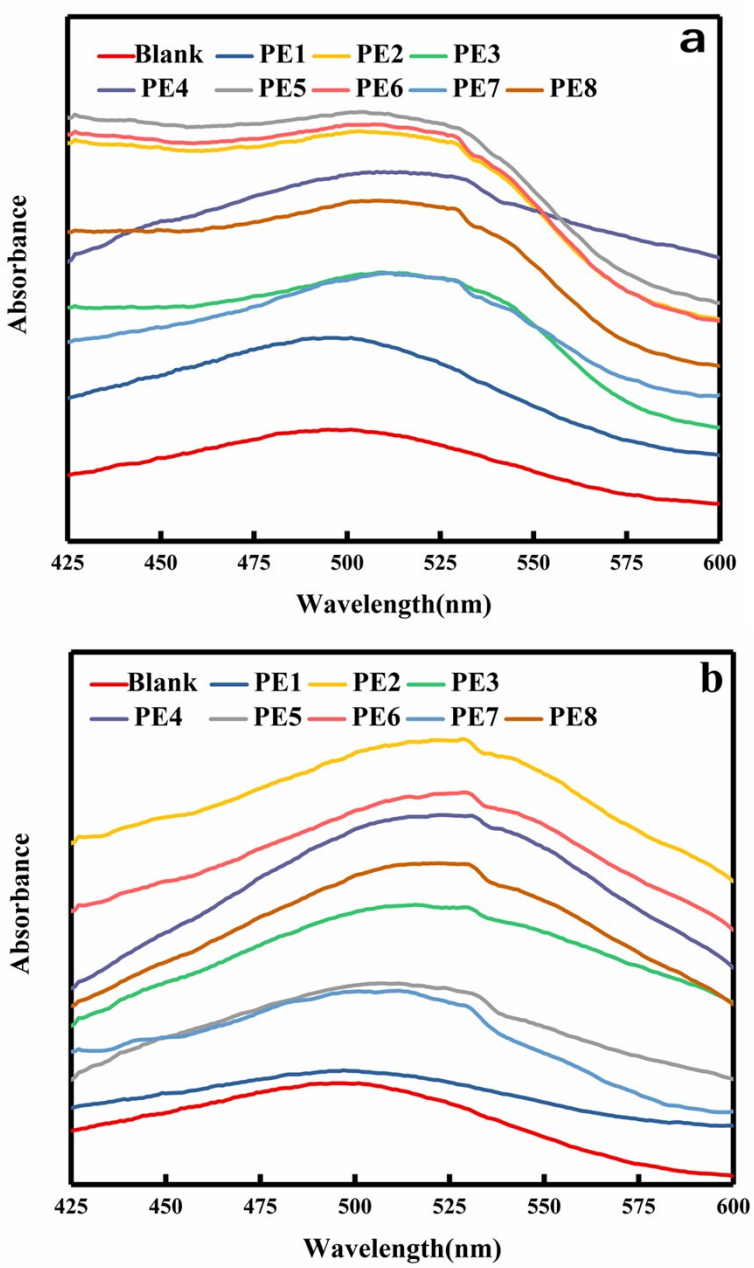

Fig. S1 UV-vis spectrum of CR in the presence of peptide nanofibrils (20 mM). a: PEs b: PEs-Zn. (20μL self-assembled PEs was added to 380μL Congo red (pH=7.4 25μM) solution. The final PEs was 20μM, and the Congo red was 23.75μM).

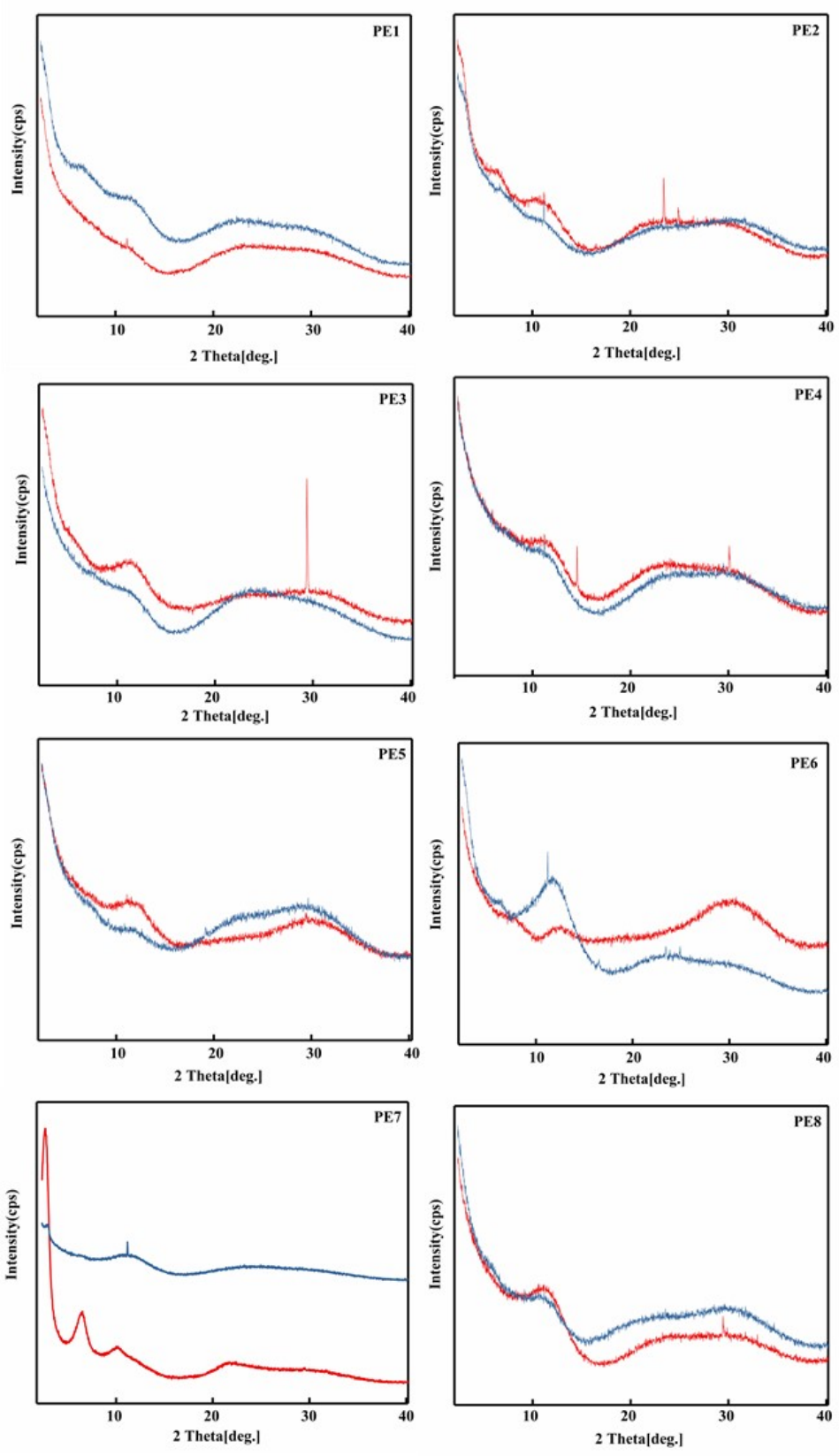

Fig. S2 X-ray diffractograms of PEs. Blue curve: PEs; red curve:PEs-Zn. All the PEs show a crystal phase with different peaks except for inactive P1, which showed a non-crystalline phase.

Table S1 Calculated NRMSD and parameters for CD data

Polypeptide	NRMSD	Result	Helix1	Helix2	Strand1	Strand2	Turns	Unordered	Total
PE1	**0.013**	1.000	0.006	0.028	0.316	0.137	0.115	0.399	1.001
PE1- Zn	**0.004**	1.000	0.210	0.113	0.320	0.150	0.019	0.188	1.000
PE2	**0.005**	1.000	0.430	0.100	0.110	0.080	0.100	0.170	0.990
PE2- Zn	**0.001**	1.000	0.520	0.120	0.130	0.095	0.087	0.049	1.001
PE3	0.051	1.000	0.031	0.045	0.266	0.131	0.114	0.413	1.000
PE3- Zn	**0.011**	1.000	0.185	0.173	0.210	0.112	0.115	0.205	1.000
PE4	**0.023**	1.000	0.110	0.210	0.230	0.150	0.110	0.180	1.000
PE4- Zn	**0.012**	1.000	0.121	0.267	0.234	0.155	0.127	0.096	1.000
PE5	**0.019**	1.000	0.040	0.080	0.240	0.130	0.270	0.250	1.010
PE5- Zn	**0.002**	1.000	0.111	0.167	0.341	0.175	0.210	0.007	1.001
PE6	0.078	1.000	0.120	0.160	0.350	0.150	0.010	0.200	0.990
PE6- Zn	**0.016**	1.000	0.232	0.176	0.218	0.220	0.009	0.145	1.000
PE7	**0.001**	1.000	0.250	0.030	0.18	0.140	0.150	0.260	1.010
PE7- Zn	**0.001**	1.000	0.361	0.115	0.218	0.163	0.112	0.111	1.000
PE8	**0.017**	1.000	0.330	0.020	0.170	0.160	0.110	0.210	1.000
PE8- Zn	**0.002**	1.000	0.390	0.109	0.156	0.212	0.135	0.109	1.000