

Supplementary

Table S1. The primers used in this work.

Primers	Sequences (5' - 3')
Q24A-F	CTCGTTCTGGACCGACGCG GCG GGCAC
Q24A-R	GGTCATCGAGACCGTGCC GCG CG
K104A-F	CGGCCCACGGGGACGTAC GCG GGCAG
K104A-R	CACTGGTGACACTGCC GCG GTAC
K143A-F	CGTGCGGCAGTCG GCG CGCACCGG
K143A-R	GGTGCCGCCGGTGCG GCG CGACTGC
V3C-F	GATATACCATGGCCACGT GCG GCAC
V3C-R	GGTTCGTGGTGAC GCA CGTGG
T30C-F	GCACGGTCTCGATGT GCG CTGG
T30C-R	CCAG GCA CATCGAGACCGTGC
N36C-F	TGGCT TGCT TACAGCACCAGCTGGCG
N36C-R	CTGTAG GCA GCCACCGGAGCCCAG
T188C-F	CAGCGGCAACTCCAATATCT TGCG TGT
T188C-R	GACAC GCA GATATTGGAGTTGCCGCTG
S109C-F	GGCAGTGTCACCT TGCG GACG
S109C-R	CGTC GCA GGTGACACTGCC
N153C-F	CACCATCACCACCGGCT TGCC ACTT
N153C-R	TG GCA GCCGGTGGTGATGGTG

The mutated sites are marked red and bold.

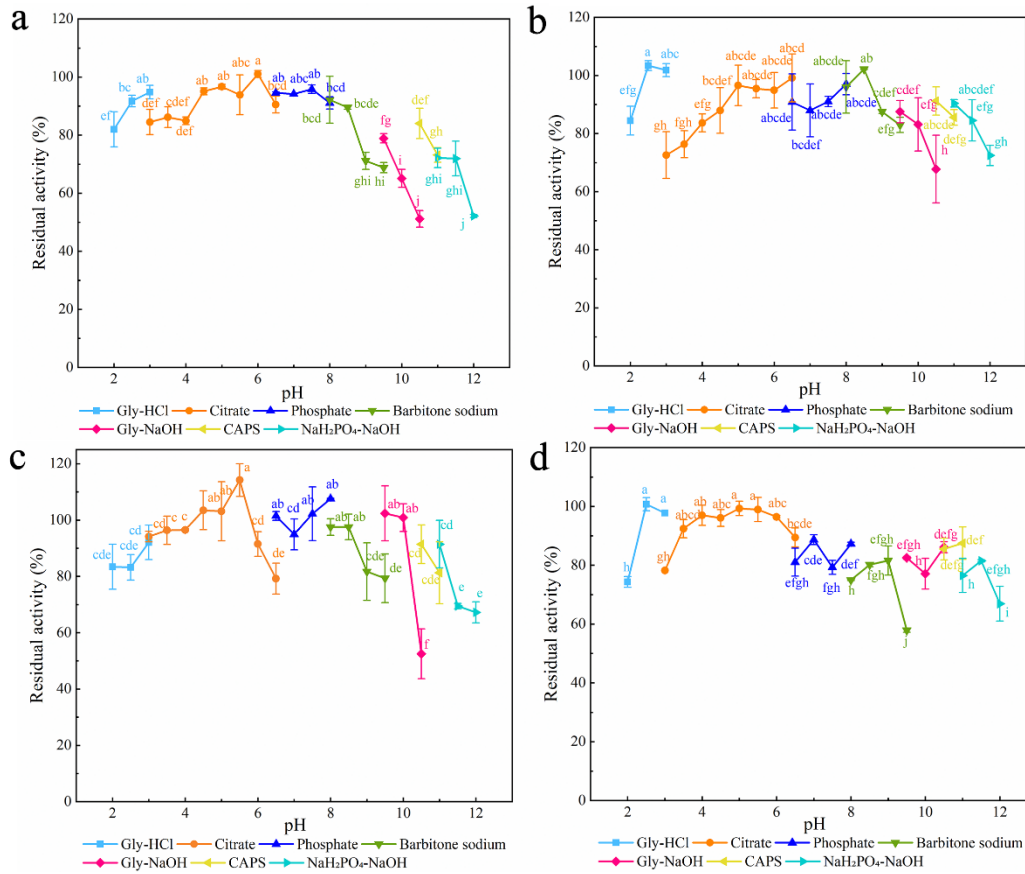


Figure S1. The pH stability of SER mutated enzyme and XynA. (a) Q24A; (b) K104A; (c) K143A; (d) XynA. pH stability was determined by incubating at varying pH from 2.0 to 12.0 at 37°C for 30 min, the activity of untreated xylanase was defined as 100%. Using beechwood xylan as substrate, buffers used were 50.00 mM Gly-HCl buffer (2.0–3.0), citrate buffer (pH 3.0–6.5), phosphate buffer (pH 6.5–8.0), barbital sodium buffer (pH 8.0–9.5), Gly-NaOH buffer (pH 9.5–10.5), CAPS buffer (pH 10.5–11.0), NaH₂PO₄-NaOH buffer (pH 11.0–12.0). Means within rows followed by the same letter were not significantly different ($p < 0.05$).

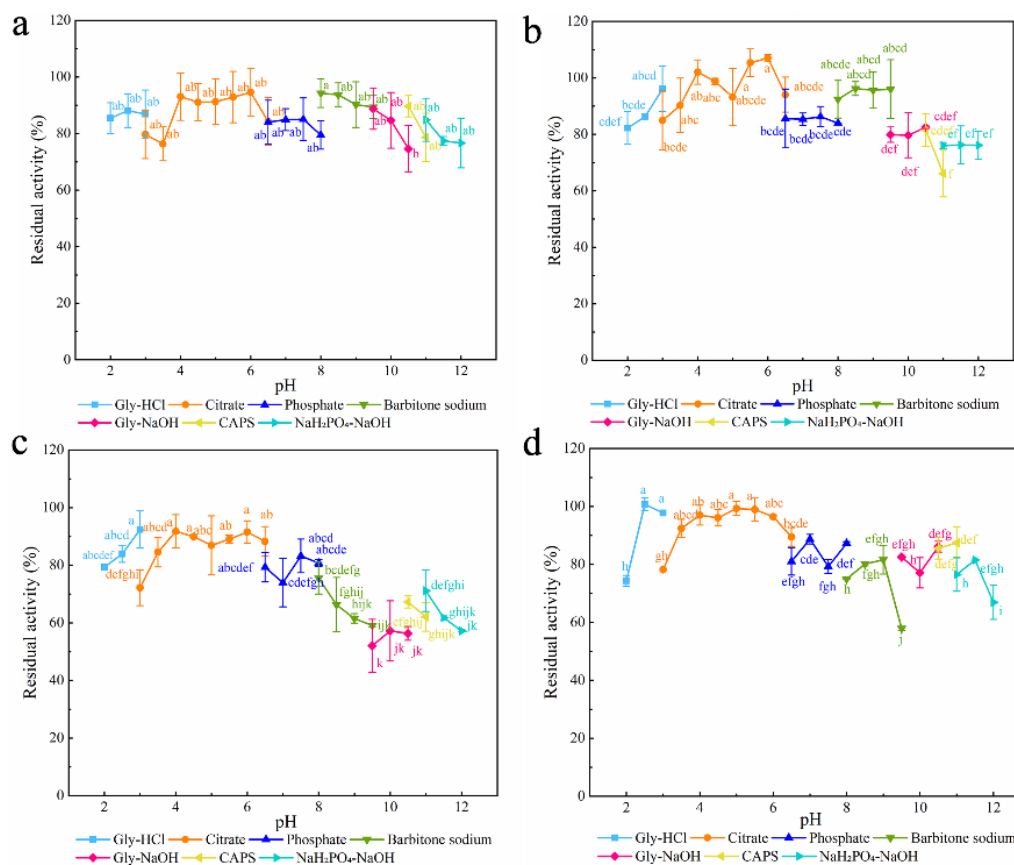


Figure S2. The pH stability of disulfide mutant enzyme and XynA. (a) XynA-VT; (b) XynA-NT; (c) XynA-SN; (d) XynA. pH stability was determined by incubating at varying pH from 2.0 to 12.0 at 37°C for 30 min, the activity of untreated xylanase was defined as 100%. Using beechwood xylan as substrate, buffers used were 50.00 mM Gly-HCl buffer (2.0–3.0), citrate buffer (pH 3.0–6.5), phosphate buffer (pH 6.5–8.0), barbitol sodium buffer (pH 8.0–9.5), Gly-NaOH buffer (pH 9.5–10.5), CAPS buffer (pH 10.5–11.0), NaH₂PO₄-NaOH buffer (pH 11.0–12.0). Means within rows followed by the same letter were not significantly different ($p < 0.05$).