

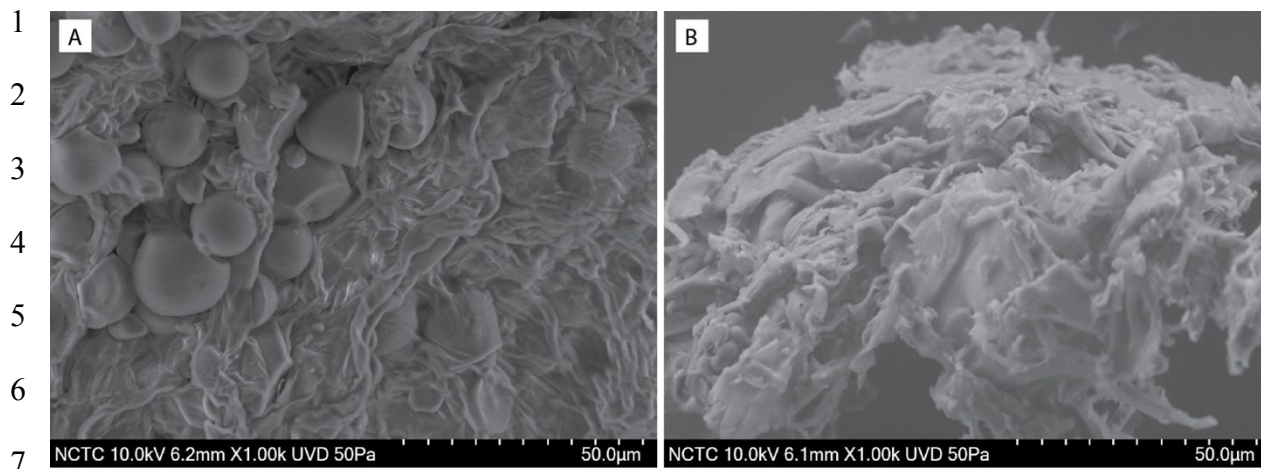
1 Supplementary data

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35 TCATCAAGACAGTTGCCACTTACGCGCACTTCTTAAGGTCCAA

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37 **Fig S1:** Nucleotide sequence of β -glucosidase gene (BGL) from *A. aculeatus* with codon
38 optimization for expression in *P. pastoris*.

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9 **Figure S2:** Scanning electron micrographs of (A) native cassava pulp and (B) de-starched
10 cassava pulp.

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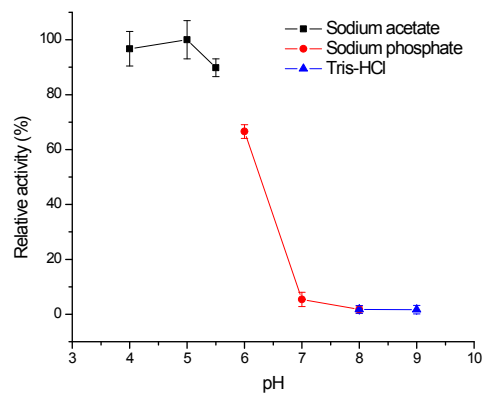
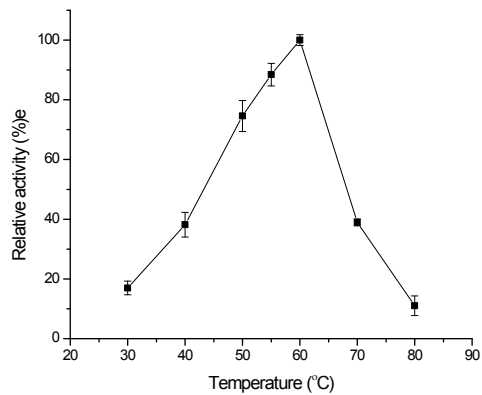
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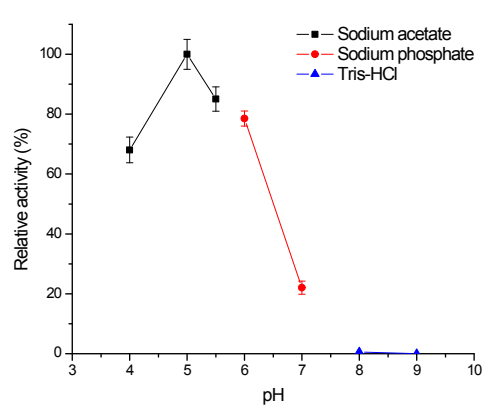
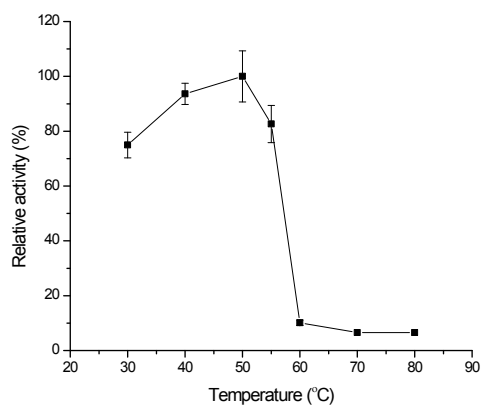
(A)



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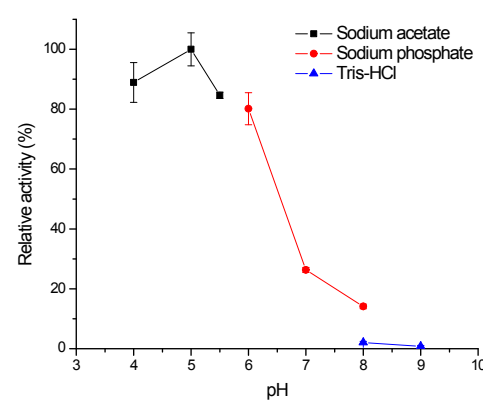
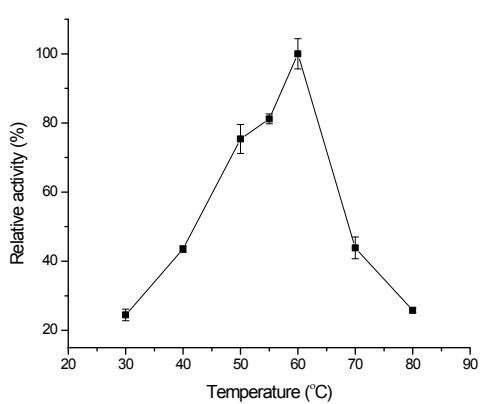
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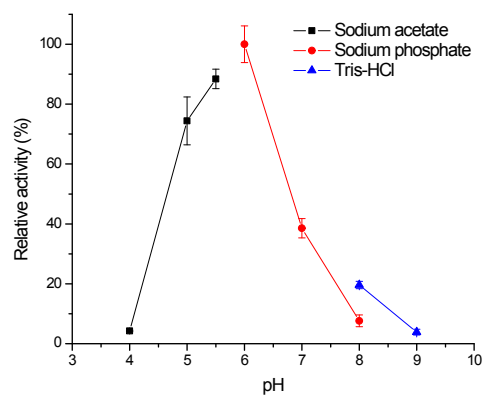
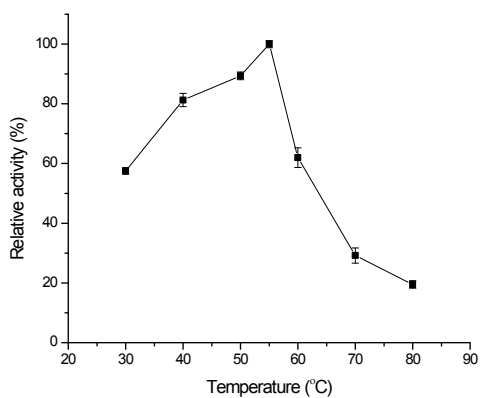
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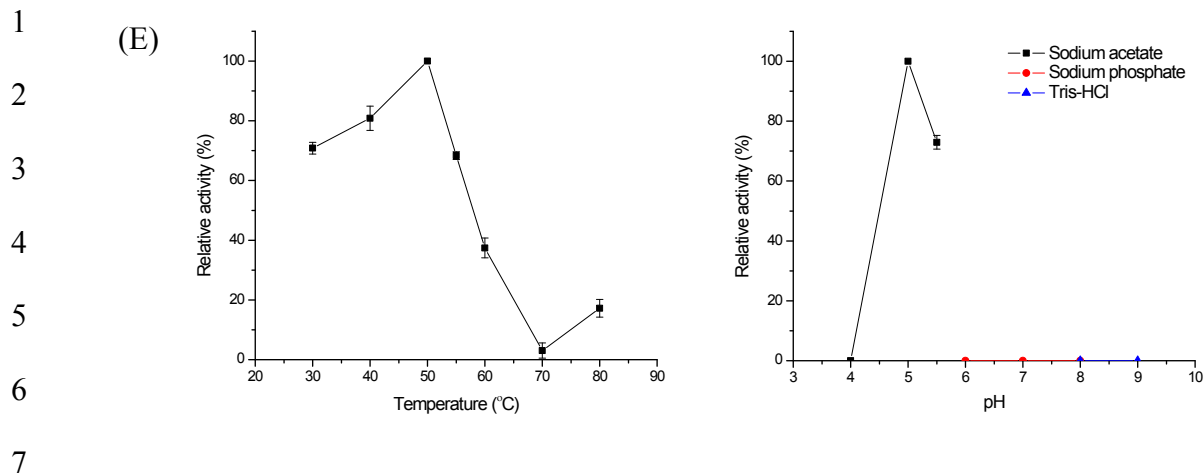
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(D)



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8 **Figure S3:** Effects of temperature and pH on activity of the recombinant enzymes. The enzyme
9 activity was measured in 100 mM sodium acetate buffer, pH 5.0 for optimal temperature study
10 and in 100 mM sodium acetate (pH 4.0-5.5), 100 mM sodium phosphate (pH 6.0-8.0), or 100
11 mM Tris-HCl (pH 8.0-9.0) at the optimal temperature of the respective enzyme for optimal pH
12 study. (A) cellobiohydrolase (Cel7A) from *T. cellulyticus*, (B) endo-glucanase (Cel12) from *A.*
13 *aculeatus* BCC17849, (C) β -glucosidase (BGL) from *A. aculeatus*, (D) endo- β 1,4-xylanase
14 (XYN) from *A. aculeatus* BCC17849 and (E) endopolygalacturonase (EPG) from *A. aculeatus*
15 BCC17849.

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1 **Table S1:** Kinetic parameters of the enzymes

Enzyme	Source	Substrate	V_{max}	K_m
Cel12	<i>A. aculeatus</i> BCC17849	CMC	15.20 $\mu\text{mole}/\text{min mg protein}$	11.67 mg/ml
		Beechwood xylan	10.44 $\mu\text{mole}/\text{min mg protein}$	10.20 mg/ml
Cel7A	<i>T. cellulolyticus</i>	Avicel	0.08 $\mu\text{mole}/\text{min mg protein}$	18.36 mg/ml
		Beechwood xylan	0.11 $\mu\text{mole}/\text{min mg protein}$	6.84 mg/ml
BGL	<i>A. aculeatus</i>	PNP-glucopyranoside	0.53 $\mu\text{mole}/\text{min mg protein}$	0.64 mM
XYN	<i>A. aculeatus</i> BCC17849	Beechwood xylan	421.02 $\mu\text{mole}/\text{min mg protein}$	6.64 mg/ml
		CMC	0.28 $\mu\text{mole}/\text{min mg protein}$	11.34 mg/ml
EPG	<i>A. aculeatus</i> BCC17849	Polygalacturonic acid	259,871.23 $\mu\text{mole}/\text{min mg protein}$	0.84 mg/ml

2 ^a Activity determined at 50°C, pH 5.0.

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1 **Table S2:** Enzyme activity profiles on different substrates

Enzyme	Source	Activity (U/mg) on the respective substrate ^a						References
		CMC	Avicel	Beechwood xylan	PNP-gluco pyranoside	Polygalacturonic acid	Cassava starch	
Cel12	<i>A. aculeatus</i> BCC17849	9.31	ND ^b	2.75	ND	ND	ND	This study
Cel7A	<i>T. cellulolyticus</i>	ND	0.075	0.05	ND	ND	ND	21
BGL	<i>A. aculeatus</i>	ND	ND	ND	0.33	ND	ND	Submitted
XYN	<i>A. aculeatus</i> BCC17849	0.15	ND	389.80	ND	ND	ND	13
EPG	<i>A. aculeatus</i> BCC17849	ND	ND	ND	ND	169,089.79	ND	This study

2 ^a Activity determined at 50°C, pH 5.0.3 ^b ND: not detectable

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