

Supplementary Materials

Supplementary Figure

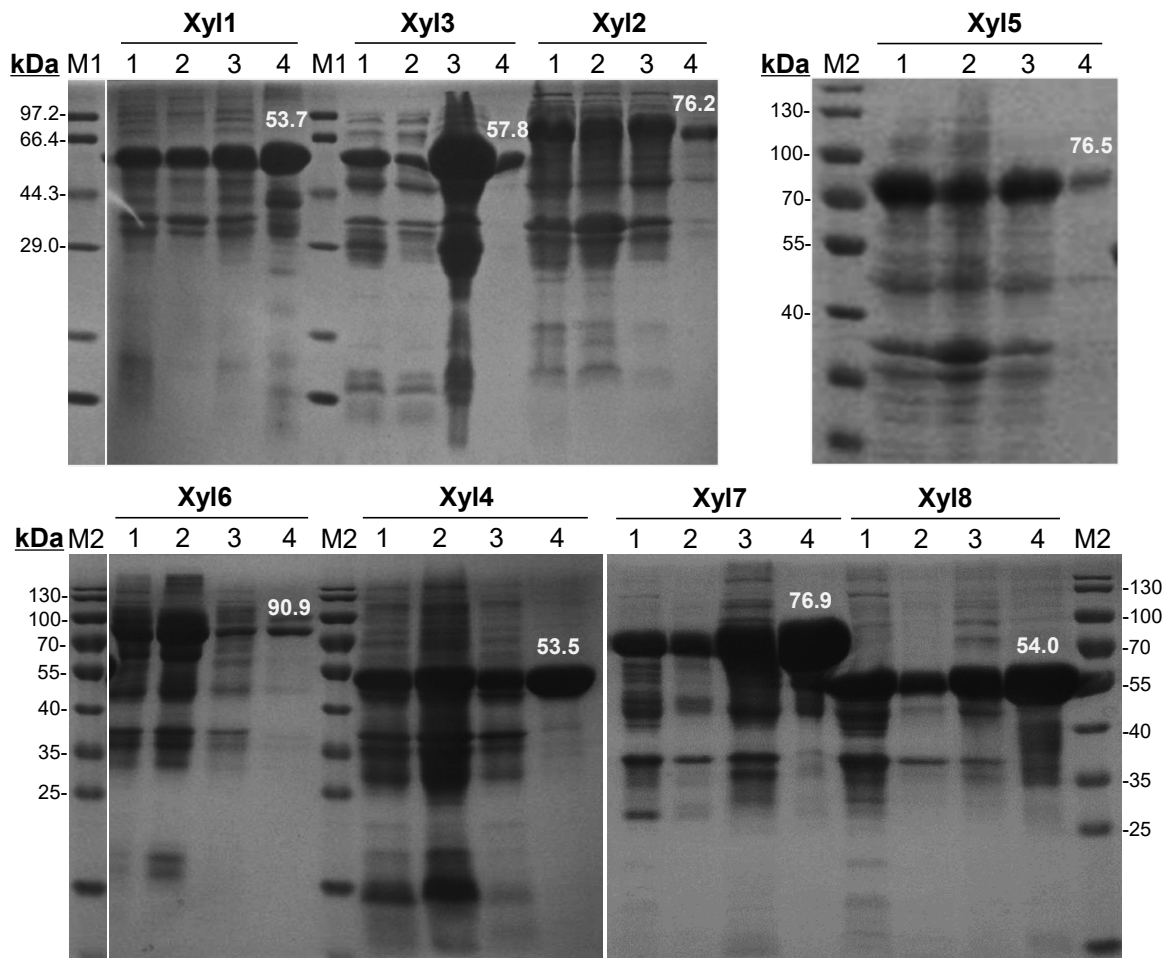


Figure S1: Expression and purification of recombinant *G. brachycerastes* symbiotic β -xylosidases. 1-4 represent total protein, precipitant, supernatant, and purified protein of the eight recombinant β -xylosidases, respectively. M denotes molecular weight marker, in which Xyl1-Xyl3 used Premixed Protein Marker (Low), Code No. 3595A, Takara (M1), and Xyl4-18 used PageRuler Prestained Protein Ladder, Code No. 26617, Thermo Fisher Scientific (M2). The molecular weight for each purified proteins was highlighted in white, and it is consistent with the initial prediction (Table S3). Please note that the volume, rather than the protein quantity, was standardized during the gel loading processes before SDS PAGE analysis.

Supplementary Tables

Table S1. Primers used in this study

Name	Nucleotide Sequence (5'-3')
<i>xy/1-F</i>	GGCCTGGTGCCGCGCGGCAGCATGAAAAACAATGCTACAAC
<i>xy/1-R</i>	TTTGTTAGCAGCCGGATCTCACTACCTCAACGTGAACGAAGC
<i>xy/2-F</i>	GGCCTGGTGCCGCGCGGCAGCATGACCAGAGAAGAACAGAT
<i>xy/2-R</i>	TTTGTTAGCAGCCGGATCTCACTACTTTACGGTCACCTTCGC
<i>xy/3-F</i>	GGCCTGGTGCCGCGCGGCAGCATGAAAACAGAACTTACAAT
<i>xy/3-R</i>	TTTGTTAGCAGCCGGATCTCATTAAAGTCCCCGATATACGCTC
<i>xy/4-F</i>	GGCCTGGTGCCGCGCGGCAGCATGAAAAACAGGGATTTAAT
<i>xy/4-R</i>	TTTGTTAGCAGCCGGATCTCATTATTCCAATGAAAAAGAAAA
<i>xy/5-F</i>	GGCCTGGTGCCGCGCGGCAGCATGAATTATGAATTAAGAATT
<i>xy/5-R</i>	TTTGTTAGCAGCCGGATCTCACTAACTTAGCATAACCTTCGC
<i>xy/6-F</i>	GGCCTGGTGCCGCGCGGCAGCATGAAAGAACAAGATTTAACC
<i>xy/6-R</i>	TTTGTTAGCAGCCGGATCTCATTATAGTTTTCTCGGGTCGAT
<i>xy/7-F</i>	CGGCCTGGTGCCGCGCGGCAGCATGCGCGACTATCTATCCGA
<i>xy/7-R</i>	TTTGTTAGCAGCCGGATCTCATCATATCGCAATCTCCTTCAC
<i>xy/8-F</i>	GGCCTGGTGCCGCGCGGCAGCATGAAAAACCAATGCTTCAAC
<i>xy/8-R</i>	TTTGTTAGCAGCCGGATCTCATCACTCCAAAGCAAACGACAG

Table S2. Summary of pyrosequencing analysis

Metrics	Data
Number of reads	37,330
Total length of reads (bp)	20,000,148
Total contig number (≥ 500 bp)	45
Total size (bp)	424,401
Average contig length (bp)	9,431
N50 length (bp)	31,944
Maximum length (bp)	43,149
GC content (%)	49.18

Table S3. Theoretical pI and molecular weight of the recombinant *G. brachycerastes* symbiotic β -xylosidases

β -xylosidase	pI	Molecular Weight (kDa)
Xyl1	5.06	53.66
Xyl2	5.77	76.22
Xyl3	5.55	57.81
Xyl4	5.35	53.52
Xyl5	5.52	76.49
Xyl6	7.04	90.87
Xyl7	5.27	76.88
Xyl8	4.91	53.96