

Fig. S1

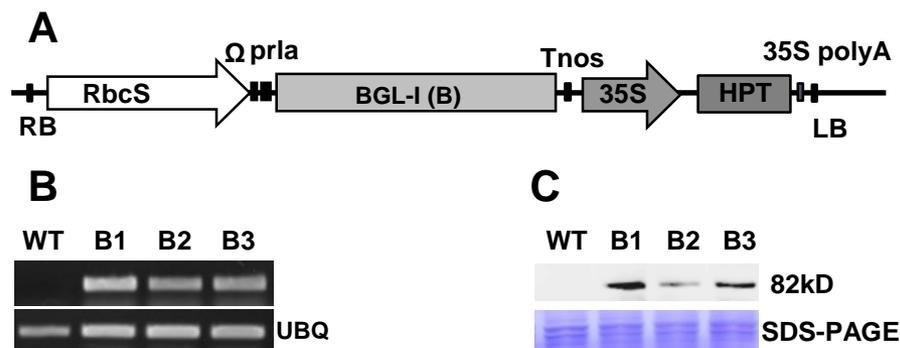


Fig. S1 Detection of transgenic plants and wild type. (A) Schematic of construct cassettes consisting of *BGL I* isolated from *Trichoderma reesei*, rice *rbcS* promoter, tobacco mosaic virus translational enhancer (Ω) and tobacco pathogenesis-related protein signal peptide (*prla*). (B) RT-PCR analysis of *BGL I* expressions in leaf tissues of three independent homozygous transgenic rice lines (B1-B3/*BGL-I*) and wild-type (WT, Zhonghua 11) at seeding. The primer pairs (5'-CAGTAAGTCCTCAGCCAT-3' and 5'-AGACCAGACAACCATAGC-3') were used for RT-PCR of the *UBQ* gene and the primer pairs (5'-GGAGGCCCGAGTGATCTGTT-3' and 5'-GCGAAGCCGTGTCCCAGTA-3') for the *BGL I* gene. (C) Western blot analysis of *BGL-I* protein extracted from the stem 2nd internodes at rice heading stages.

Fig. S2

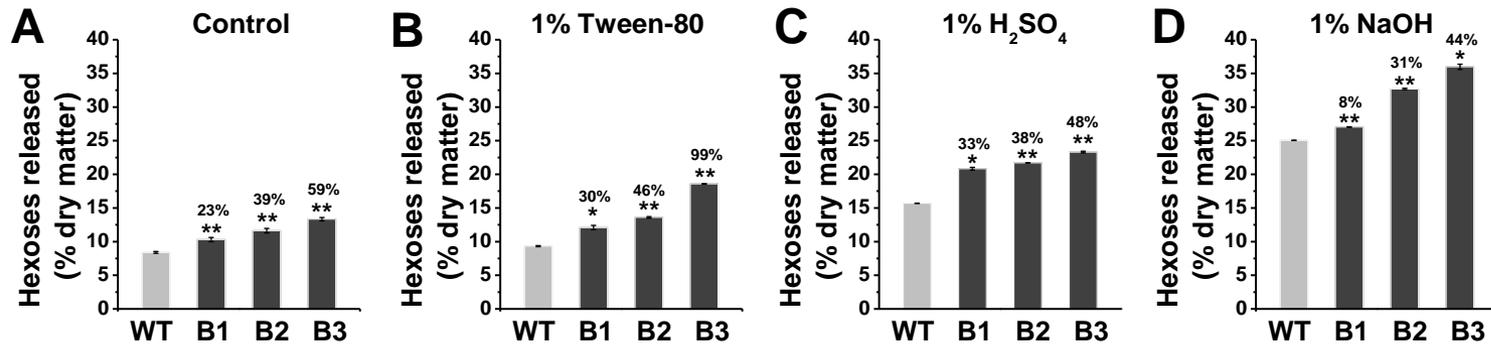


Fig. S2 Biomass enzymatic saccharification in the mature straws of transgenic rice lines. (A) Hexoses yields released from direct biomass enzymatic hydrolysis in transgenic rice lines and WT using commercial mixed-cellulases. (B) Hexoses yields released from direct biomass enzymatic hydrolysis in transgenic rice lines and WT using commercial mixed-cellulases co-supplied with 1% Tween-80. (C) Hexoses yields released from enzymatic hydrolysis co-supplied with 1% Tween-80 after 1% sulfuric acid pretreatment in transgenic rice lines and WT. (D) Hexoses yields released from enzymatic hydrolysis co-supplied with 1% Tween-80 after 1% sodium hydroxide pretreatment in transgenic rice lines and WT. Student's *t*-test between WT and transgenic plants as ***p* < 0.01 and **p* < 0.05; Increased percentage obtained by subtraction between transgenic line and WT divided by WT. Student's *t*-test between WT and transgenic plants as ***p* < 0.01 and **p* < 0.05; Increased percentage obtained by subtraction between transgenic line and WT divided by WT.

Table S1. Plant cell wall compositions in mature straws of transgenic rice line (B3)

Samples	Cell wall composition (% cell wall)				
	Cellulose		Hemicelluloses		Lignin
WT	51.45 ± 0.52		29.08 ± 0.33		19.48 ± 0.35
B3	48.11 ± 0.57**	-6.49%	33.22 ± 0.23**	14.24%	18.67 ± 0.22* -4.11%

Student's *t*-test between WT and transgenic plants as ***P* < 0.01.

Altered percentage is obtained by subtraction between transgenic line and WT divided by WT.

Table S2. Monosaccharide composition of hemicellulose in mature straws of transgenic rice line (B3)

(%)	Rha	Fuc	Ara	Xyl	Man	Gal	X/A
WT	0.37	0.05	13.09	80.94	0.09	5.46	6.18
B3	0.26	0.04	16.96	80.00	0.07	2.68	4.72

Table S3. Monomer composition of lignin in mature straws of transgenic rice line (B3)

	H (μmol/g)	G (μmol/g)	S (μmol/g)	H/G	S/G	S/H
WT	270.17 ± 5.46	356.23 ± 3.38	228.79 ± 3.99	0.76 ± 0.02	0.64 ± 0.02	0.85 ± 0.03
B3	290.04 ± 3.98**	363.56 ± 10.99	242.39 ± 8.18	0.78 ± 0.06	0.67 ± 0.03	0.86 ± 0.07

Student's *t*-test between WT and transgenic plants as ***P* < 0.01.