Supporting Information for:

^{13}C CP/MAS NMR can discriminate genetic backgrounds of rice starch

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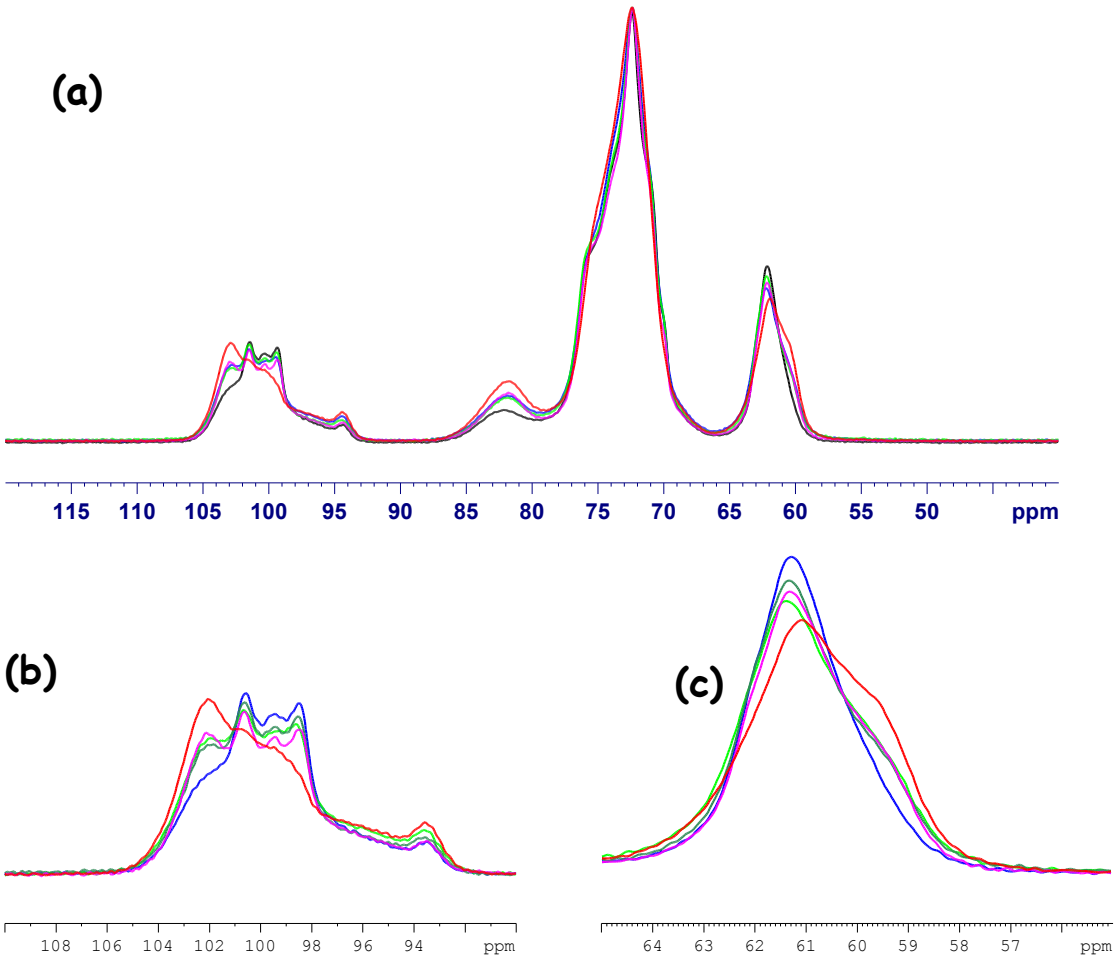

Figure S1. Superimposed spectra for (a) all region of starch, (b) expanded C1 and (c) C6 area for waxy (blue), japonica (right green), indica (green), SSIIIa-deficient mutant (magenta), and SSIIIa/BEIIb-deficient mutant (red).

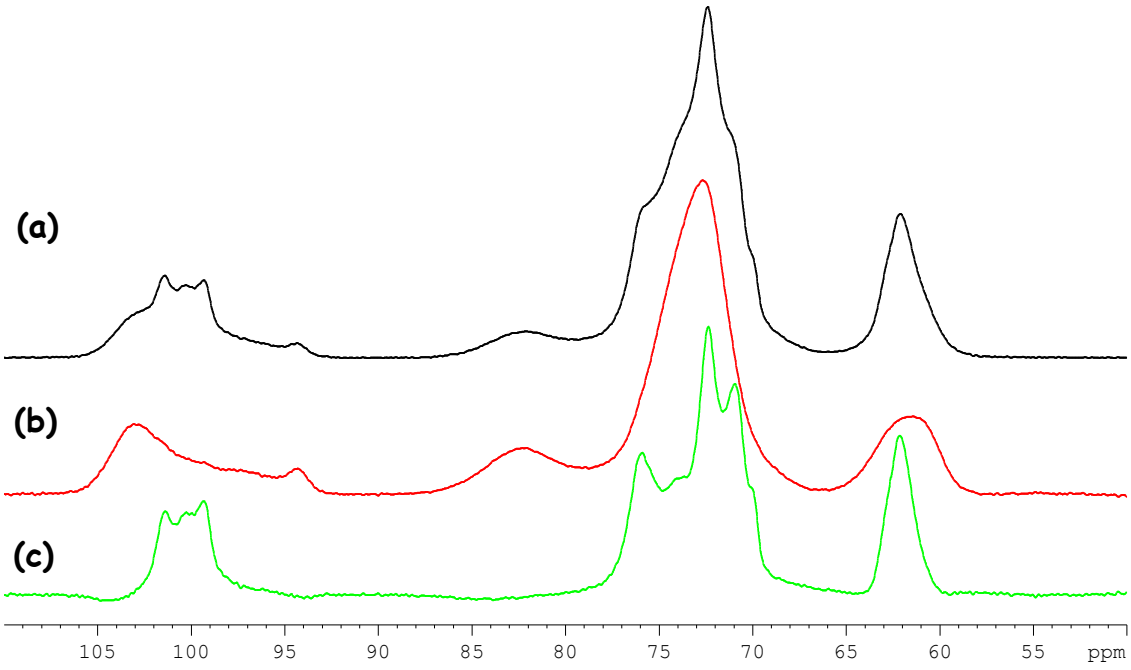

Figure S2. ^{13}C CP/MAS NMR spectra for (a) waxy (black), (b) amorphous rice powder from japonica (red) and (c) waxy subtraction spectra using alpha rice as the amorphous standard (a)-(b) (green).

Table S1 ^{13}C CP/MAS NMR chemical shifts, peak width and integral area of deconvoluted peaks for C6 region.

	peak1				peak2				Best Overlap(%)
	CS	LB(Hz)	Integral	content (%)	CS	LB(Hz)	Integral	content (%)	
waxy	62.19	271	1	87.7	60.79	242	0.14	12.3	98.94
japonica	62.28	308	1	83.3	60.61	266	0.2	16.7	99.24
indica	62.27	281	1	82.6	60.61	260	0.21	17.4	99.03
SSIIIa-deficent mutant	62.21	281	1	82.0	60.59	242	0.22	18.0	99
SSIIIa/ BEIIb-deficient mutant	62	352	1	84.7	60.46	227	0.18	15.3	98.7

Table S2 ^{13}C CP/MAS NMR chemical shifts, peak width and integral area of deconvoluted peaks for C1 region.

	peak 1	peak 2	peak 3	peak 4	peak 5	peak 6	content of ordered structure[a] (%)
	CS (ppm) LB (Hz) Integral (%)						
waxy	102.89 421 29.0	101.46 154 16.2	100.36 188 18.3	99.35 148 17.4	97.74 676 15.4	94.39 182 3.8	51.9
japonica	102.86 409 36.8	101.40 156 9.6	100.32 203 15.1	99.38 170 15.8	97.36 676 18.8	94.39 184 4	40.5
indica	102.94 383 33.4	101.52 142 11.0	100.41 216 19.1	99.37 147 15.4	97.60 695 18.4	94.42 191 2.7	45.5
SSIIIa-deficient mutant	102.97 345 35.1	101.49 131 10.9	100.41 220 19.3	99.30 138 13.7	97.58 747 18.2	94.36 154 2.8	43.9
SSIIIa/ BEIIb-deficient mutant	102.93 385 45.2	101.04 249 14.5	99.81 259 13.6		97.44 704 23.1	94.35 203 3.6	28.1

Table S3 ^{13}C CP/MAS NMR chemical shifts, peak width and integral area of deconvoluted peaks after subtraction for C1 region.

	peak 1	peak 2	peak 3	peak 4	peak 5
	CS (ppm) LB (Hz) Integral (%)				
waxy	102.69 261 6.5	101.48 152 27.2	100.39 172 23.9	99.37 147 26.7	98.43 711 15.7
japonica	102.76 260 15.2	101.40 156 18.3	100.32 203 22.4	99.38 170 31.4	97.36 676 12.7
indica	102.88 240 15.2	101.52 142 23.7	100.41 216 21.3	99.37 147 30.6	97.60 695 9.1
SSIIIa-deficient mutant	102.95 242 25	101.49 131 27.5	100.41 220 19.8	99.30 138 10.0	97.58 747 18.0
SSIIIa/ BEIIb-deficient mutant	102.97 228 24.3	101.04 249 26.3	99.81 259 35.3		97.44 704 14.1

Table S4 ^{13}C CP/MAS NMR chemical shifts, peak width and integral area of deconvoluted peaks after subtraction for C6 region.

	peak1				peak2				Best Overlap(%)
	CS	LB(Hz)	Integral	content (%)	CS	LB(Hz)	Integral	content (%)	
waxy	62.17	234	1	0.9	61.01	174	0.07	0.07	96.71
japonica	62.29	252	1	0.8	60.53	283	0.24	0.23	98.77
indica	62.26	232	1	0.8	60.63	268	0.22	0.21	97.88
SSIIIa-deficent mutant	62.23	227	1	0.8	60.73	250	0.31	0.29	95.7
SSIIIa/BEIIb-deficient mutant	62.05	228	1	0.6	60.4	252	0.55	0.46	97.47