Supporting Information

Cooking with active oxygen and solid alkali facilitates lignin degradation in bamboo pretreatment

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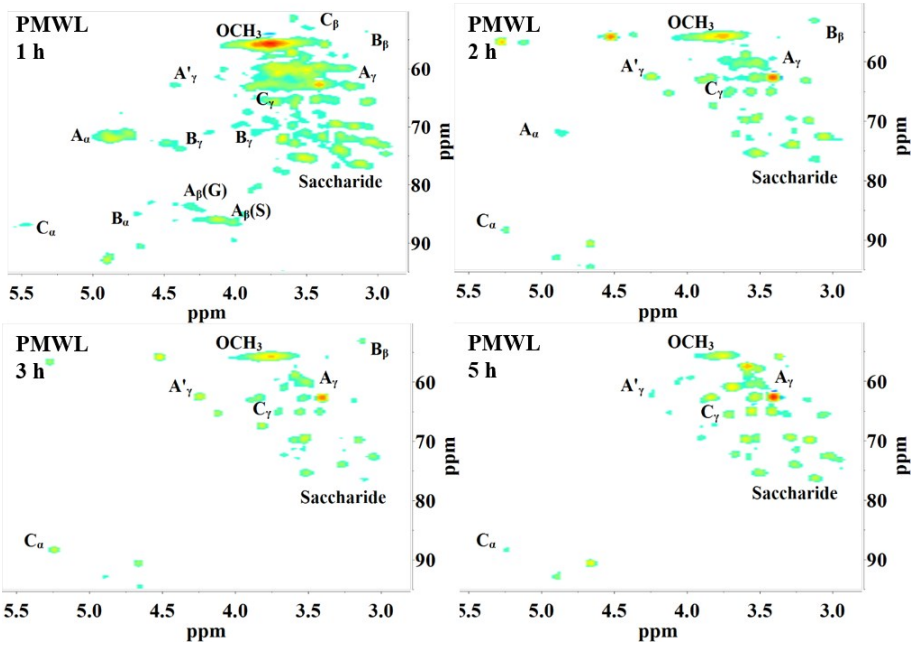
Table S1 Pulp yield with CAOSA process at different cooking times

	Raw materials	1 h pulp	2 h pulp	3 h pulp	5 h pulp	10 h pulp
Dosage of raw materials/g		986.01	986.12	986.13	986.07	986.00
Wet weight of pulp/g		2336.73	2244.90	2224.49	2061.22	1881.11
Water content/%	11.25	68.37	76.77	77.12	76.70	74.62
Yield of pulp/%		74.95	52.88	51.62	48.71	48.41
Ash content/%	0.59	6.23	6.50	4.51	4.58	4.75

Table S2 Assignments of main ^{13}C-^{1}H cross-signals in the HSQC spectra of the MWL

Label	δ_C/δ_H (ppm)	Assignments
C_β	53.1/3.46	C_β-H_β in phenylcoumaran (C)
B_β	53.5/3.07	C_β-H_β in β-β (resinol) (B)
OCH_3	56.4/3.70	C-H in methoxyls
A_γ	59.9/3.35-3.80	C_γ-H_γ in β-O-4 substructures (A)
A'_γ	63.0/4.36	C_γ-H_γ in γ-acylated β-O-4 (A')
C_γ	62.2/3.76	C_γ-H_γ in phenylcoumaran (C)
B_γ	71.2/3.82-4.18	C_γ-H_γ in β-β (resinol) (B)
A_α	71.8/4.86	C_α-H_α in β-O-4 unit (A)
A_β(G)	83.4/4.38	C_β-H_β in β-O-4 linked to G (A)
B_α	84.8/4.66	C_α-H_α in β-β (resinol) (B)
A'_β(G)	80.8/4.52	C_β-H_β in β-O-4 linked to G (A')
A_β(S)	85.8/4.12	C_β-H_β in β-O-4 linked to S (A)
C_α	86.8/5.45	C_α-H_α in phenylcoumaran (C)
$T'_{2,6}$	103.9/7.34	$C'_{2,6}$-$H'_{2,6}$ in tricin (T)
T_6	98.9/6.23	$C_{2,6}$-$H_{2,6}$ in tricin (T)
T_8	94.2/6.60	C_8-H_8 in tricin (T)
T_3	106.2/7.07	C_3-H_3 in tricin (T)
$S_{2,6}$	103.9/6.70	$C_{2,6}$-$H_{2,6}$ in syringyl unit (S)
$S'_{2,6}$	106.3/7.32	$C_{2,6}$-$H_{2,6}$ in oxidized S unit (S)
G_2	110.8/6/97	C_2-H_2 in guaiacyl unit (G)
G_5	114.5/6.70	C_5-H_5 in guaiacyl unit (G)
G_6	119.0/6.78	C_6-H_6 in guaiacyl unit (G)
$H_{2,6}$	127.7/7.17	$C_{2,6}$-$H_{2,6}$ in p-hydroxyphenyl unit (H)
$PCE_{3,5}$	115.6/6.77	$C_{3,5}$-$H_{3,5}$ in p-coumarate (PCE)
$PCE_{2,6}$	130.2/7.48	$C_{2,6}$-$H_{2,6}$ in p-coumarate (PCE)
PCE_7	144.8/7.51	C_7-H_7 in p-coumarate (PCE)
PCE_8	113.7/6.24	C_8-H_8 in p-coumarate (PCE)
FA_2	110.7/7.35	C_2-H_2 in p-FERULATE (FA)
FA_6	123.1/7.20	C_6-H_6 in p-FERULATE (FA)
FA_7	144.8/7.51	C_7-H_7 in p-FERULATE (FA)



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25 **Figure S1** HSQC NMR spectra of PMWL (side chain region)

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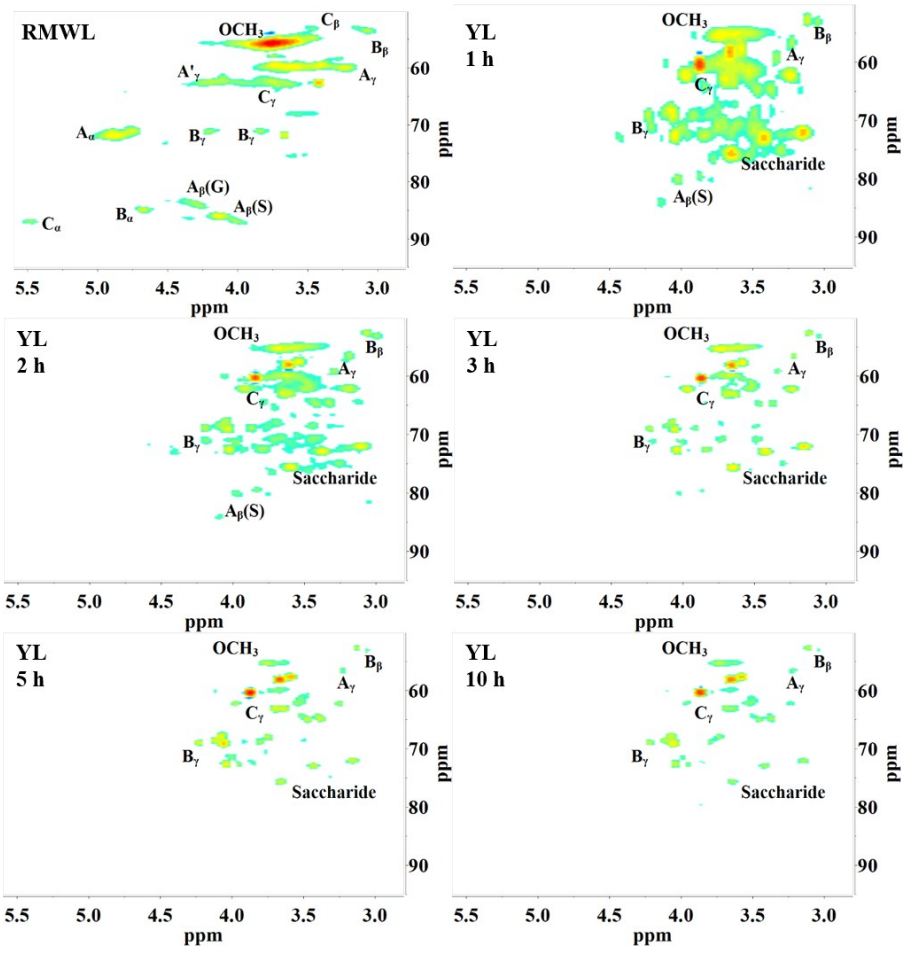

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28 **Figure S2** HSQC NMR spectra of YL (side chain region)

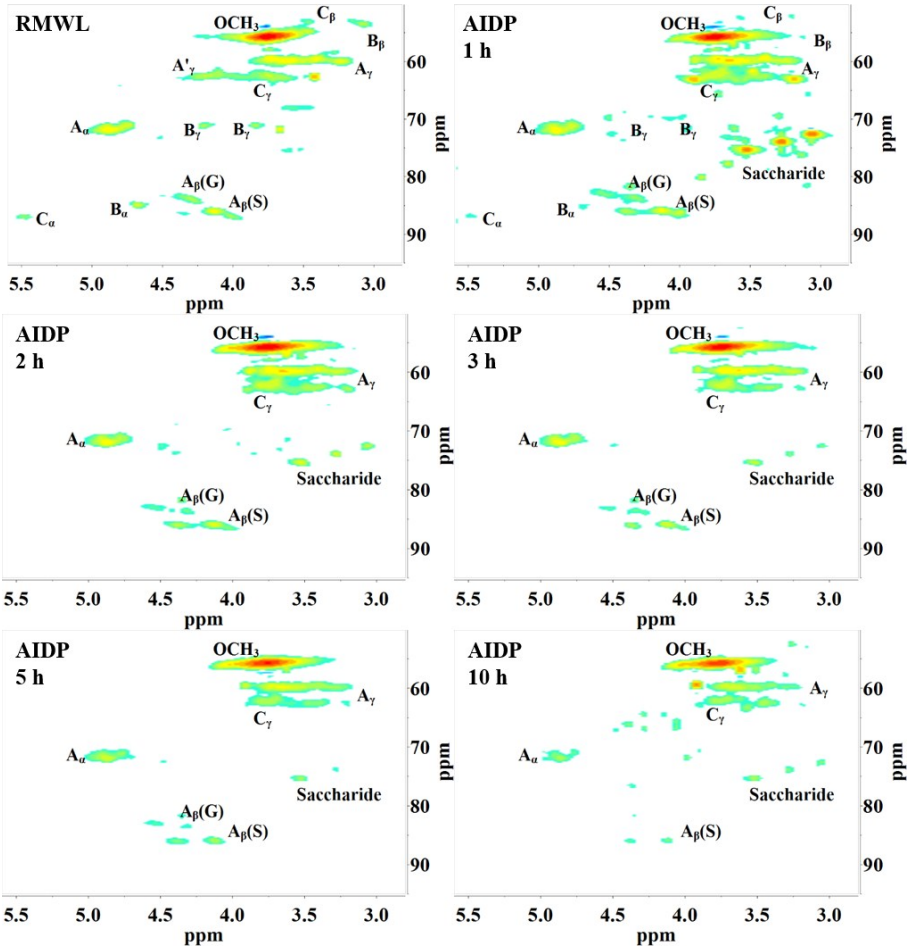

Figure S3 HSQC NMR spectra of AIDPs (side chain region)

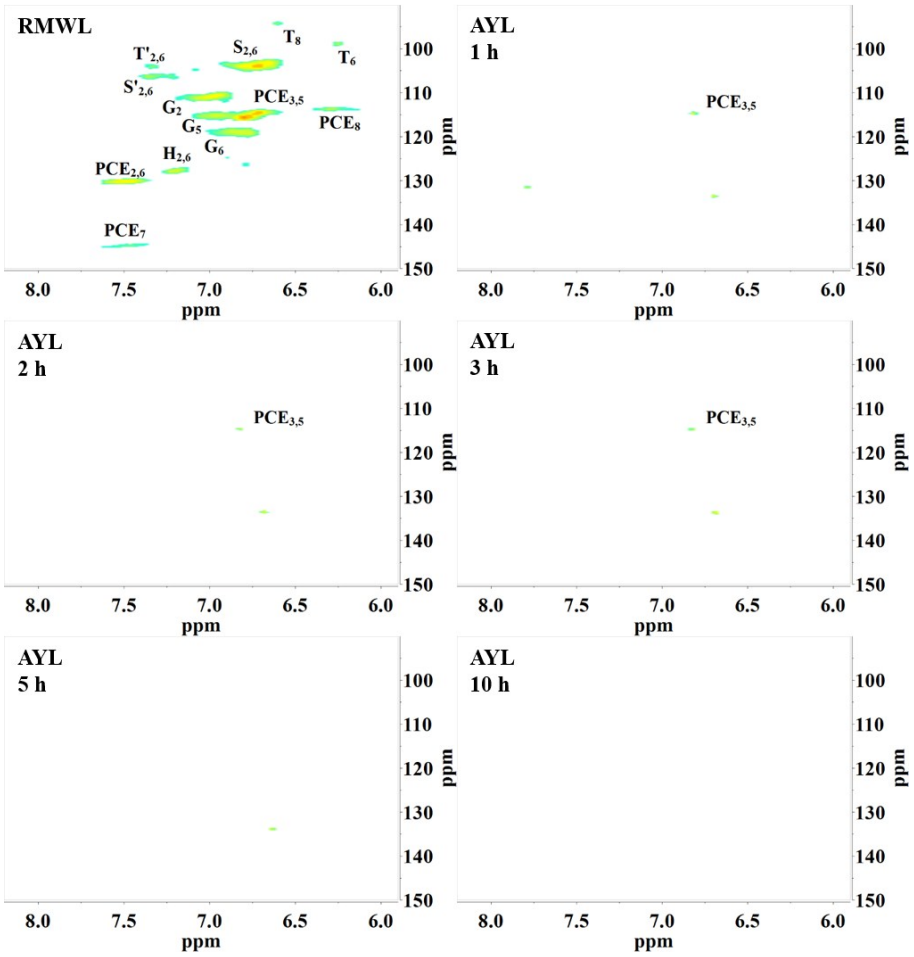

Figure S4 HSQC NMR spectra of AYL (aromatic region)