Supporting Information

Structural Characterization and Antioxidant Activity of Milled Wood Lignin from Xylose Residue and Corncob

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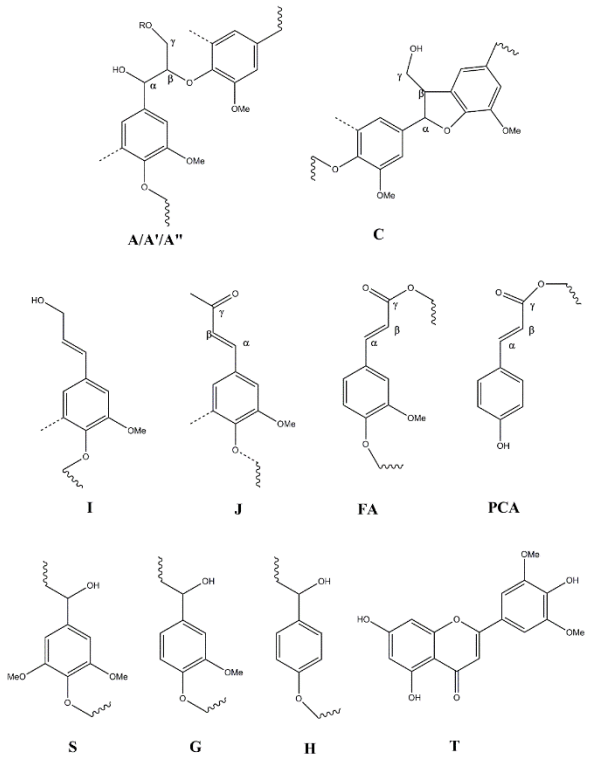

Figure S1. Main structures of lignin fractions of corncob, involving different side-chain linkages, and aromatic units by 2D HSQC NMR. (A) *β*-O-4′ linkages; (A′) *β*-O-4 linkages with acetylated g-carbon; (A″) *β*-O-4 linkages with p-counmaroylated *γ*-carbon; (C) phenylcoumarance structures formed by *β*-5′ and *α*-O-4′ linkages; (I) cinnamyl alcohol end-groups; (J) cinnnamyl aldehyde end-groups; (S) syringyl unit; (G) guaiacyl unit; (H) p-hydroxyphenyl unit; (FA) ferulate; (*p*CA) p-coumarate; (T) tricin.

Table S1. Assignments of main lignin ^{13}C-^{1}H correlation signals in the HSQC NMR spectra shown in Figure 2.

Label	$\delta C/\delta H$	assignment
A_{γ}	59.65/3.61 and 3.27	C_{γ}–H_{γ} in *β*-O-4′ substructures (A)
I_{γ}	61.3/4.09	C_{γ}–H_{γ} in *p*-hydroxycinnamyl (sinapyl/coniferyl) alcohol (I)
A'_{γ}/A''_{γ}	62.7/3.83-4.30	C_{γ}–H_{γ} in γ-acylated *β*-O-4′ substructures (A′/A″)
I'_{γ}	64.0/4.79	C_{γ}-H_{γ} in γ-acylated cinnamyl alcohol end-groups (I′)
Aα	71.8/4.80	Cα-Cα in *β*-O-4′ substructures
$A_{\beta(G)}$ and $A'_{\beta(S)}$	83.4/4.31	C_{β}–H_{β} in *β*-O-4′ substructures linked to a G unit (A) and in *γ*-acylated *β*-O-4′ substructures linked to a S unit (A′)
$A_{\beta(S)}$	85.9/4.12	C_{β}–H_{β} in *β*-O-4′ substructures linked to a S unit (erythro) (A)
$S_{2,6}$	103.7/6.71	$C_{2,6}$-$H_{2,6}$ in etherified syringyl units (S)
$T'_{2,6}$	103.9/7.30	$C_{2',6'}$-$H_{2',6'}$ in tricin (T)
T_3	104.7/7.03	C_3-H_3 in tricin (T)
G_2	110.7/6.98	C_2-H_2 in guaiacyl units (G)
FA_2	111.0/7.32	C_2-H_2 in ferulate (FA)
$J_{2(G)}$	112.24/7.25	C_2-H_2 in cinnamyl aldehyde end-groups (J)
pCA_{β} and FA_{β}	113.5/6.27	C_{β}-H_{β} in p-coumarate (*p*CA) and ferulate (FA)
G_5	114.9/6.72 and 6.94	C_5-H_5 in guaiacyl units (G)
$PCA_{3,5}$	115.5/6.77	$C_{3,5}$-$H_{3,5}$ in p-coumarate (*p*CA)
G_6	118.7/6.77	C_6-H_6 in guaiacyl units (G)
$J_{6(G)}$	122.3/7.10	C_6-H_6 in cinnamyl aldehyde end-groups (J)
$H_{2,6}$	127.8/7.22	$C_{2,6}$-$H_{2,6}$ in p-hydroxyphenyl units (H)
$PCA_{2,6}$	129.9/7.46	$C_{2,6}$-$H_{2,6}$ in *p*-coumarate (*p*CA)
PCA_{α} and FA_{α}	144.7/7.45	C_{α}-H_{α} in *p*-coumarate (*p*CA) and ferulate (FA)