

**Natural deep eutectic solvent mediated extrusion for continuous high-solid pretreatment of
lignocellulosic biomass**

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Table S1 Assignments of the lignin ^{13}C - ^1H correlation signals observed in the HSQC spectra of the sorghum lignins ¹⁻³

Labels	$\delta_{\text{C}}/\delta_{\text{H}}$ (ppm)	Assignment
B_β	53.2/3.47	C _β /H _β in β-5' phenylcoumaran substructures (B)
C_β	53.6/3.06	C _β /H _β in β-β' resinol substructures (C)
OMe	55.5/3.71	C/H in methoxyls
A_γ	59.8/3.36 & 3.58	C _γ /H _γ in normal (γ-hydroxylated) β-O-4' substructures (A)
I_γ	61.4/4.08	C _γ /H _γ in cinnamyl alcohol end-groups (I)
B_γ	62.5/3.75	C _γ /H _γ in β-5' phenylcoumaran substructures (B)
I'_γ	64.1/4.70	C _γ /H _γ in γ-acylated cinnamyl alcohol end-groups (I')
A'_γ	62.8/3.70	C _γ /H _γ in γ-acylated β-O-4' substructures (A')
HK_α	85.2/4.63	C _α /H _α in Hibbert ketone (HK)
C_γ	71.2/3.80 & 4.17	C _γ /H _γ in β-β' resinol substructures (C)
A_α/A'_α	71.5/4.75 & 71.9/4.89	C _α /H _α in β-O-4' substructures (A, A') -G&-S, respectively
A'_{β(G)}	83.0/4.23	C _β /H _β in γ-acylated β-O-4' substructures linked to a G unit (A')
A'_{β(S)}	83.3/4.33	C _β /H _β in γ-acylated β-O-4' substructures linked to an S unit (A')
A_{β(G)}	83.4/4.31	C _β /H _β in β-O-4' substructures linked to a G unit (A)
C_α	85.2/4.63	C _α /H _α in β-β' resinol substructures (C)
A_{β(S)}	85.8/4.09	C _β /H _β in β-O-4' substructures linked to an S unit (A)
B_α	87.0/5.46	C _α /H _α in β-5' phenylcoumaran substructures (B)
T₈	94.3/6.56	C ₈ /H ₈ in triclin units (T)
T₆	99.0/6.22	C ₆ /H ₆ in triclin units (T)
S_{2/6}	103.9/6.65	C ₂ /H ₂ and C ₆ /H ₆ in etherified syringyl units (S)
T_{2'/6'}	104.1/7.29	C _{2'} /H _{2'} and C _{6'} /H _{6'} in triclin units (T)
T₃	104.9/7.03	C ₃ /H ₃ in triclin units (T)
S'_{2/6}	106.4/7.26	C ₂ /H ₂ and C ₆ /H ₆ in α-oxidized syringyl units (S')
G₂	110.9/6.95	C ₂ /H ₂ in guaiacyl units (G)
FA₂	111.0/7.30	C ₂ /H ₂ in ferulic acid units (FA)
G'₂	112.5/7.29	C ₂ /H ₂ in α-oxidized guaiacyl units (G')
pCA_β	113.7/6.28	C _β /H _β in p-coumarate (pCA)
FA_β	113.7/6.28	C _β /H _β in p-ferulate (FA)
H_{3/5}	114.5/6.63	C ₃ /H ₃ and C ₅ /H ₅ in p-hydroxyphenyl units (H)
G₅	115.1/6.75 & 6.98	C ₅ /H ₅ in guaiacyl units (G)
G₆	118.8/6.78	C ₆ /H ₆ in guaiacyl units (G)
I'_β	123.5/6.40	C _β /H _β in γ-acylated cinnamyl alcohol end-groups (I')
H_{2/6}	127.9/7.21	C ₂ /H ₂ and C ₆ /H ₆ in p-hydroxyphenyl units (H)
I_β	128.8/6.21	C _β /H _β in cinnamyl alcohol end-groups (I)
pCA_{2/6}	130.0/7.22	C ₂ /H ₂ and C ₆ /H ₆ in p-coumarate (pCA)
pCA_α	144.8/7.22-7.52	C _α /H _α in p-coumarate (pCA)
FA_α	144.8/7.22-7.52	C _α /H _α in p-ferulate (FA)

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