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Supplementary Material

Pyrolytic lignin: a promising biorefinery feedstock for the production of fuels and valuable chemicals

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Table S1. Literature data on the gas composition for the fast pyrolysis of various biomass sources in different reactor configurations

Reference	[1]	[2]	[2]	[3]	[4]	[4]	[5]
Biomass source	Pinewood sawdust	Citrus waste	Citrus waste	Pinewood	White oak	Switchgrass	Rice straw
Reactor type[a]	CSB	CSB	CSB	FB	FB	FB	Free fall
T (^oC)	500	425	600	500	450-500	450-500	500
Yield, wt%	9.0-10.0	12.0	24.0	20.0	13.0	15.0	29.5
H_2	9.1	1.0	19.0	6.4	1.0	5.1	35.3
CH_4	1.9	0.3	6.0	12.8	6.6	7.8	16.3
CO	50.1	17.0	25.0	52.3	45.6	57.6	11.7
CO_2	35.4	80.0	45.0	22.0	46.6	29.5	20.8
C_2-C_5	3.5	1.7	5.0	6.4	0.0	-	5.3
N_2	-	-	-	-	-	-	10.3
O_2	-	-	-	-	-	-	0.3

[a]*Reactor abbreviations: FB, Fluidized bed; CSB, Conical spouted bed; BFB, bubbling fluidized bed*

Table S2. Compositions of various chars produced in the fast pyrolysis of biomass as reported in the literature

Reference	[6]	[6]	[1]	[2]	[2]	[7]	[7]	[8]	[8]
Biomass source	Rice husk	Elm sawdust	Pinewood sawdust	Citrus waste	Citrus waste	Sugarcane bagasse	Corn stover	Rice husk	Rice husk
Reactor type[a]	FB	FB	CSB	CSB	CSB	BFB	BFB	FB	FB
T (^{o}C)	550	550	500	425	600	600	600	500	700
Yield (wt%)	-	-	18.1	33.0	27.0	-	-	30.5	26.2
Water (wt%)	2.6	2.4	-	-	-	2.8	4.0	-	-
Volatiles (wt%)	13.1	29.1	23.5	23.8	16.9	19.1	17.7	19.4	9.6
Fixed C (wt%)	33.4	56.6	73.6	67.9	72.2	62.0	47.9	31.9	32.3
Ash (wt%)	50.9	12.0	2.9	8.3	10.9	16.1	30.4	48.7	58.2
C (wt%)	37.3	68.0	82.7	71.6	72.6	62.4	56.7	38.4	25.4
H (wt%)	1.8	3.8	2.9	3.6	2.6	2.9	1.9	2.3	1.2
N (wt%)	0.3	0.4	0.1	1.8	1.4	0.6	0.7	0.3	0.4
O (wt%)	9.3	15.9	11.4	14.7	12.2	18.1	10.0	10.3	14.8
HHV (MJ kg^{-1})	-	-	30.4	26.1	27.5	24	19.8	16.6	16.3
H/C mol. ratio	0.05	0.06	-	-	-	0.55	0.4	-	-
O/C mol. ratio	0.25	0.23	-	-	-	0.22	0.13	-	-
S_{BET} (m^2 g^{-1})	-	-	16.2	1.5	4.8	309	109	8.5	16.7

[a]Reactor abbreviations: FB, Fluidized bed; CSB, Conical spouted bed; BFB, bubbling fluidized bed

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