

Supplementary Material

Effect of Solvent Pretreatment on the Flash Pyrolysis Performance of Yinggema Lignite

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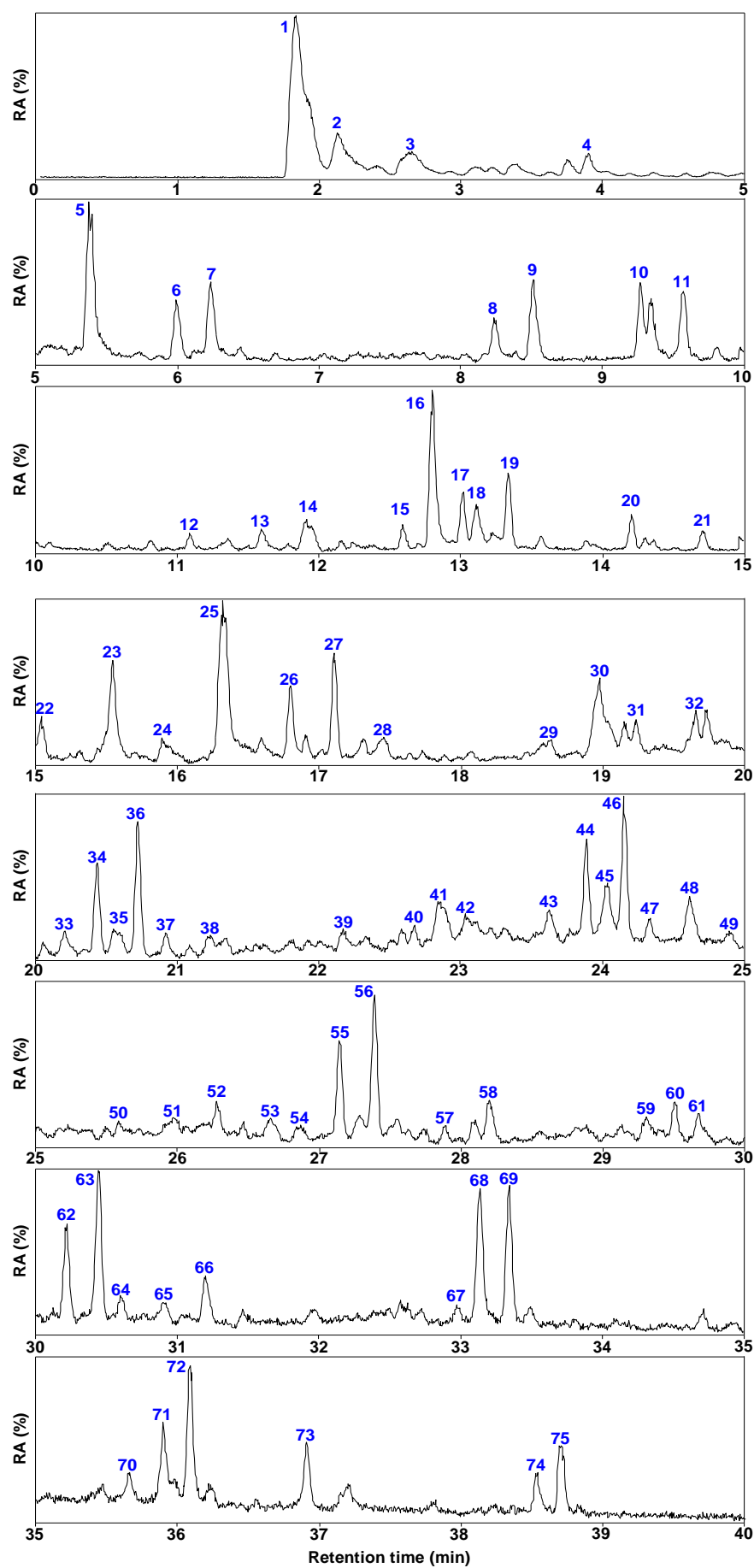


Figure. S1. Total ion flow chromatography of YL

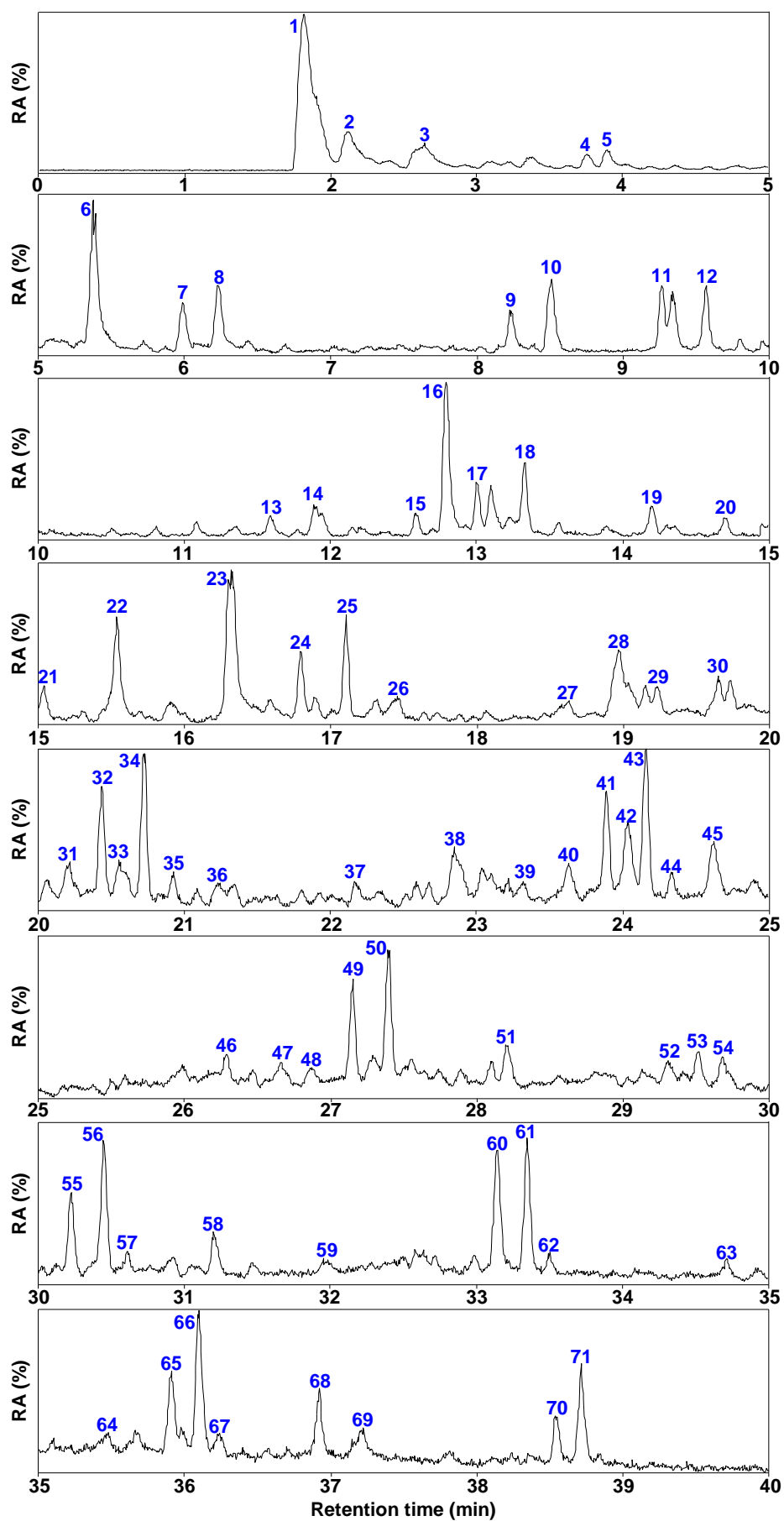


Figure. S2. Total ion flow chromatography of LR_{VL}

Table S1Alkanes detected in YL and LR_{YL}

Retention time (min)	Compounds	Formula	RC	
			YL	LR _{YL}
2.7	n-Hexane	C ₆ H ₁₄	3.56	5.11
3.9	Heptane	C ₇ H ₁₆	1.75	1.65
6.24	Hexane,2,4-dimethyl	C ₈ H ₁₈	1.63	1.81
9.57	Nonane	C ₉ H ₂₀	1.51	1.30
13.33	Decane	C ₁₀ H ₂₂	1.34	1.22
17.10	Undecane	C ₁₁ H ₂₄	1.49	1.41
20.72	Dodecane	C ₁₂ H ₂₆	1.70	1.49
24.15	Tridecane	C ₁₃ H ₂₈	1.58	1.41
27.39	Tetradecane	C ₁₄ H ₃₀	1.62	1.51
30.45	Dodecane,5,8-diethyl	C ₁₆ H ₃₄	1.56	1.70
33.34	Tetradecane,2,6,10-trimethyl	C ₁₇ H ₃₆	1.46	1.49
36.09	Octadecane,6-methyl	C ₁₉ H ₄₀	1.06	1.29
38.71	Heptadecane,2,6,10,15-tetramethyl	C ₂₁ H ₄₄	0.59	0.83

Table S2Alkenes detected in YL and LR_{YL}

Retention time (min)	Compounds	Formula	RC	
			YL	LR _{YL}
3.75	1-Heptene	C ₇ H ₁₄	1.32	1.31
5.99	1-Octene	C ₈ H ₁₆	1.39	1.26
9.27	4-Nonene	C ₉ H ₁₈	1.05	0.97
9.81	1-Octene,3,7-dimethyl	C ₁₀ H ₂₀	0.27	0
13.00	1-Decene	C ₁₀ H ₂₀	0.89	0.84
16.80	2-Undecene, (E)	C ₁₁ H ₂₂	1.11	1.00
20.44	3-Dodecene, (Z)	C ₁₂ H ₂₄	1.14	1.06
23.89	6-Tridecene, (Z)	C ₁₃ H ₂₆	0	1.03
27.15	7-Tetradecene	C ₁₄ H ₂₈	1.21	1.16

Table S3Arenes detected in YL and LR_{YL}

Retention time (min)	Compounds	Formula	RC	
			YL	LR _{YL}
3.41	Benzene	C ₆ H ₆	1.74	0
5.38	Toluene	C ₇ H ₈	4.22	4.51
8.24	Ethylbenzene	C ₈ H ₁₀	0.77	0.82
8.51	o-Xylene	C ₈ H ₁₀	1.97	2.12
9.34	p-Xylene	C ₈ H ₁₀	0.77	0.88
11.59	Benzene, propyl	C ₉ H ₁₂	0.37	0.45
11.91	Benzene,1-ethyl-3-methyl	C ₉ H ₁₂	1.12	1.19
13.11	Benzene,1,2,4-trimethyl	C ₉ H ₁₂	0.86	0.89
14.20	Benzene,1,2,3-trimethyl	C ₉ H ₁₂	0.64	0
15.89	Benzene,1-methyl-2-propyl	C ₁₀ H ₁₄	0.40	0
22.67	(1-Methylenebut-2-enyl)benzene	C ₁₁ H ₁₂	0	0.19
23.03	Naphthalene,1,2-dihydro-3-methyl	C ₁₁ H ₁₂	0	0.18
24.04	Benzocycloheptatriene	C ₁₁ H ₁₀	0.89	0.92
26.28	Benzene, heptyl	C ₁₃ H ₂₀	0.29	0
28.10	Naphthalene,1,7-dimethyl	C ₁₂ H ₁₂	0.32	0.27
28.20	Naphthalene,1,3-dimethyl	C ₁₂ H ₁₂	0.67	0.54
33.14	3-(2-Methyl-propenyl)-1H-indene	C ₁₃ H ₁₄	1.5	1.55

Table S4Oxygen-containing organic compounds detected in YL and LR_{YL}

Retention time (min)	Compounds	Formula	RC	
			YL	LR _{YL}
1.91	Carbon dioxide	CO ₂	27.38	27.27
2.91	1-Butanol,3-methyl	C ₅ H ₁₂ O	3.97	4.51
12.80	Phenol	C ₆ H ₆ O	3.43	0.82
15.54	Phenol, 3-methyl	C ₇ H ₈ O	2.24	2.12
16.32	p-Cresol	C ₇ H ₈ O	3.47	0.88
18.97	Phenol,2,4-dimethyl	C ₈ H ₁₀ O	2.24	0.45
19.65	Phenol,4-ethyl	C ₈ H ₁₀ O	0.50	1.19
20.55	2-Decanone	C ₁₀ H ₂₀ O	0	0.89
24.89	Oxacyclotetradeca-4,11-diyne	C ₁₃ H ₁₈ O	0	0.2
30.23	Benzyl alcohol, α-isobutyl- 2,4,5-trimethyl	C ₁₄ H ₂₂ O	0.53	0
31.20	1-Dodecanol,3,7,11-trimethyl	C ₁₅ H ₃₂ O	1.14	0.19
31.95	5,8,11-Heptadecatriynoic acid,methyl ester	C ₁₈ H ₂₄ O ₂	0	0.18
33.50	Trans-13-Octadecenoic acid	C ₁₈ H ₃₄ O ₂	0	0.92
35.90	1-Hexadecanol,2-methyl	C ₁₇ H ₃₆ O	0.49	0
37.23	9-Hexadecenoic acid	C ₁₆ H ₃₀ O ₂	0	0.27
37.82	10-Octadecenal	C ₁₈ H ₃₄ O	0	0.54
38.54	Behenic alcohol	C ₂₂ H ₄₆ O	0.32	1.55

Table S5Other organic compounds detected in YL and LR_{YL}

Retention time (min)	Compounds	Formula	RC	
			YL	LR _{YL}
10.51	3-Pyridinecarboxaldehyde, O- acetyloxime, (E)	C ₈ H ₈ N ₂ O ₂	0.17	0
11.36	Dextroamphetamine	C ₉ H ₁₃ N	0.25	0
17.46	2-[2-Methyl-2-amioethyl] benzofuran	C ₁₁ H ₁₃ NO	0	0.50
20.21	Glycylsarcosine	C ₅ H ₁₀ N ₂ O ₃	0.50	0
22.16	Phenol,2-(1-methylethyl)-, methylcarbamate	C ₁₁ H ₁₅ NO ₂	0.27	0
22.35	4-(2,5-Dihydro-3- methoxyphenyl) butylamine	C ₁₁ H ₁₉ NO	0.12	0
22.84	N, N'-Bis (Carbobenzyloxy)- lysine methyl(ester)	C ₂₃ H ₂₈ N ₂ O ₆	1.03	0
23.62	Ginsenoine E	C ₁₇ H ₂₂ O ₂	0.44	0.57
31.47	1-H-Indole,4-(3-methyl-2- butenyl)-	C ₁₃ H ₁₅ N	0	0.21
35.47	N-N'-Bis (Carbobenzyloxy)	C ₂₃ H ₂₈ N ₂ O ₆	0	0.18