Supplementary Information - Reactive catalytic fast pyrolysis of biomass over molybdenum oxide catalysts: A parametric study

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Compounds identified on the GC/MS are grouped into oxygenates and hydrocarbons which are then further classified into seven categories based on functionalities. Hydrocarbons include mono-aromatics, polyaromatic hydrocarbons (PAH), and aliphatics. Oxygenates are classified as simple phenols, multi-functional phenols, furans,

carbonyls-mono, and carbonyls-multi. Simple phenols will only have a single oxygen atom while multi-functional phenols are classified as having at least one alcohol group in addition to other oxygen functionalities such as methoxy groups, acids or carbonyls. Similarly, carbonyls-mono will have only a single oxygen atom that is double bonded to a carbon atom while the carbonyls-multi will have at least two oxygen atoms. The main compounds identified by GC/MS and their respective categorization is provided in **SI Table 1.**

SI Table 1. Primary compounds identified in GC/MS of RCFP bio-crude and their respective categorization.

Polyaromatic Hydrocarbons	
	Naphthalene, 2,3,6-trimethyl-
	Naphthalene, 2,7-dimethyl-
	Naphthalene, 1,6,7-trimethyl-
	9H-Fluorene, 2-methyl-
	Fluorene
	Phenanthrene, 1-methyl-7-(1-methylethyl)-
	Naphthalene, 2-methyl-
	Naphthalene, 1-methyl-
	Naphthalene
	1,4,5,8-Tetramethylnaphthalene

Mono-Aromatic	
	p-Xylene
	Toluene
	Benzene, 1-ethyl-2-methyl-
	Indene
	Indane
	Benzene, 1,2,4-trimethyl-
	Ethylbenzene
	1H-Indene, 2,3-dihydro-4-methyl-
	2-Methylindene
	1H-Indene, 1,3-dimethyl-
Simple Phenol	
	Phenol
	Phenol, 4-methyl-
	Phenol, 2-methyl-
	Phenol, 2,3-dimethyl-
	Phenol, 3-ethyl-
	Phenol, 2,4-dimethyl-
	Phenol, 2-ethyl-
	Phenol, 2,4,6-trimethyl-
	Phenol, 3-methyl-
	Phenol, 3-ethyl-5-methyl-
Carbonyl-Mono	
	2-Cyclopenten-1-one
	2-Cyclopenten-1-one, 2-methyl-
	2-Butanone
	Cyclopentanone
	Acetone
	2-Cyclopenten-1-one, 2,3-dimethyl-
	2-Pentanone
	3-Pentanone
	2-Cyclopenten-1-one, 3-methyl-
	Cyclopentanone, 2-methyl-
Furan	

	Furan, 2,5-dimethyl-
	Furan, 3-methyl-
	Benzofuran, 2-methyl-
	2-Furancarboxaldehyde, 5-methyl-
	Ethanone, 1-(2-furanyl)-
	Furan
	Furan, 2-methyl-
Multi-function Phenol	
	Phenol, 2-methoxy-4-(1-propenyl)-, (E)-
	Phenol, 2-methoxy-4-methyl-
	Phenol, 2-methoxy-4-(1-propenyl)-
	Phenol, 2-methoxy-
	Phenol, 5-methyl-2-(1-methylethyl)-, acetate
	Eugenol
	Phenol, 2-methoxy-4-(1-propenyl)-, (Z)-
	Resorcinol
	2-Methoxy-4-vinylphenol
	Phenol, 4-ethyl-2-methoxy-