**Supplementary table:**

**Table S1**

**Product yields distribution from various recycled cycles at 300 °, 1/15 B/S ratio for 30 min.**

| acetone recycling runs | Bio-crude oil yield (wt.%)* | Solid residues yield (wt.%)* | Solvent + gas yield (wt.%)* |
|---|---|---|---|
| zero | 44.5 | 43 | 12.5 |
| first | 43 | 39.7 | 17.3 |
| second | 41 | 38.9 | 20.1 |
| third | 35 | 35.8 | 29.2 |

* wt% of dry basis

**Table S2**

Major compounds from recycled acetone

| No. | RT (min) | Chemical compound name | Area (%) |
|---|---|---|---|
| 1 | 2.15 | Ethane, 1,1-diethoxy- | 6.17 |
| 2 | 2.42 | Cyclobutene, 2-propenylidene | 1.27 |
| 3 | 2.76 | Propanoic acid, 2-hydroxy-, ethyl ester | 3 |
| 4 | 2.86 | 2-Ethoxytetrahydrofuran | 2.73 |
| 5 | 2.91 | 1,3,5-Trioxane | 1.12 |
| 6 | 3.02 | 2-Pentanone-4hydroxy-4methyl- | 1.78 |
| 7 | 4.17 | Phenol | 1.57 |
| 8 | 4.61 | 3-Methylcyclopentane-1,2-dione | 2.22 |
| 9 | 5.03 | Propanoic acid, 2-methyl. | 4.83 |
| 10 | 5.17 | Cyclopropyl carbinol | 3.83 |
| 11 | 5.37 | 2-Cyclopenten-1-one,3-ethyl-2-hydroxy- | 1.72 |
| 12 | 5.71 | Phenol, 4-ethyl | 24.36 |
| 13 | 5.8 | Butanoic acid, diethyl ester | 1.63 |
| 14 | 5.94 | 1,2-Benzenediol | 3.51 |
| 15 | 6.1 | Benzofuran, 2,3-dihydro- | 2.26 |
| 16 | 6.26 | Glutaric acid, 2-isopropylphenyl undecyl ester | 1.53 |
| 17 | 6.34 | 3-Octanol, 2,3-dimethyl | 1.7 |
| 18 | 6.45 | Butanoic acid, propyl ester | 2.11 |
| 19 | 6.48 | 1,2- Benzediol, 3-methyl- | 1.15 |
| 20 | 6.55 | Butanoic acid, 2-hydroxy-, ethyl ester | 2.91 |
| 21 | 6.6 | Phenol, 4-ethyl-2-methoxy- | 3.01 |
| 22 | 7.04 | Ethyl pentofuranoside | 3.62 |
| 23 | 7.1 | Phenol, 2,6-dimethoxy- | 3.16 |
| 24 | 7.27 | Ethyl pentofuranoside | 2.27 |
| 25 | 7.78 | Phenol 2-methoxy-4-(1-propenyl)- | 1.63 |

**- Not detected or peak area less than 1% of total area.**

**Table S3**

**Major compounds from A.donax oils produce under various temperatures.**

| No. | RT (min) | Chemical compound name | Area (%) | | |
|---|---|---|---|---|---|
| | | | 250 °C | 300 °C | 350 °C |
| 1 | 2.47 | 3-Penten-2-one | - | - | 3.6 |
| 2 | 2.58 | 4-Methyl-4-penten-2-one | - | 4.00 | 5.24 |
| 3 | 2.73 | Oxalic acid, allyl isobutyl ester | 1.89 | - | - |
| 4 | 3.01 | (Z)- 4-methyl-2-Pentene | 3.77 | - | 1.04 |
| 5 | 3.06 | 4-methyl-3-Penten-2-one | - | 7.97 | 35.72 |
| 6 | 3.4 | Methacrylic acid, ethyl ester | 2.96 | - | 0.59 |
| 7 | 3.5 | Furfural | 4.47 | - | - |
| 8 | 3.63 | 2-methyl-2-hexanol | - | 1.16 | - |
| 9 | 3.77 | 2-Furanmethanol | 8.98 | - | - |
| 10 | 3.96 | 2-Oxopropanoic acid, ethyl ester | 1.13 | - | - |
| 11 | 4.07 | 5-methyl-5-Hexen-2-one | - | 1.46 | - |
| 12 | 4.41 | 3-methyl-3-Hexen-2-one | - | - | 1.18 |
| 13 | 4.64 | 4-Hydroxybutanoic acid | - | 1.23 | - |
| 14 | 4.87 | 2,5-Hexanedione | 2.94 | 6.7 | 3.02 |
| 15 | 5.19 | 2-(1-hydroxy-1-methyl-2-oxopropyl)-2,5-dimethylfuran-3(2H)-one | 2.57 | 2.17 | - |
| 16 | 5.53 | 1,2,5-trimethyl-Benzene | - | 1.95 | 6.69 |
| 17 | 5.66 | Phenol | - | 1.5 | 1.1 |
| 18 | 6.12 | 2-Methylpropanoic acid anhydride | - | 1.17 | - |
| 19 | 6.4 | 3,6-Heptanedione | 13.87 | 7.82 | 2.5 |
| 20 | 6.63 | 4-Hydroxy-2-methylbutanoic acid | 18.48 | 6.84 | 1.56 |
| 21 | 6.66 | 3-Methyl-2-cyclopenten-1-one | - | 2.95 | - |
| 22 | 7.19 | (3Z,5E)-2,7-Dimethyl-3,5-octadiene | 4.75 | 3.93 | |
| 23 | 7.48 | 2-Methoxyphenol | 5.38 | 1.32 | 2.17 |
| 24 | 7.71 | 3,5-Dimethyl-2-cyclohexen-1-one | - | - | 3.47 |
| 25 | 7.81 | 2,6-Dimethyl-2,5-heptadien-4-one | - | 2.17 | 2.54 |
| 26 | 8.01 | 3,5,5-Trimethyl-2-cyclohexen-1-ol | - | - | 3.18 |
| 27 | 8.65 | 4-Ethylphenol | 5.14 | 8.2 | 5.34 |
| 28 | 8.96 | 2-Acetonylcyclopentanone | - | 2.73 | - |
| 29 | 9.02 | 4-(2-Furyl)-3-buten-2-one | 3.69 | 1.52 | - |
| 30 | 9.13 | 3-Ethoxyphenol | - | 3.3 | 1.57 |
| 31 | 9.45 | 2,3-Dihydrobenzofurane | 3.8 | - | - |
| 32 | 10.44 | 4-Ethyl-2-methoxyphenol | 9.19 | 8.07 | 3.04 |
| 33 | 10.98 | 2-Methoxy-4-vinylphenol | 1.41 | - | - |
| 34 | 11.49 | 2,6-Dimethoxyphenol | 5.61 | 1.54 | 1.65 |
| 35 | 12.07 | 4-Acetylphenol | - | 1.48 | - |
| 36 | 12.9 | 2-Methoxy-4-propenylphenol | 1.18 | - | - |
| 37 | 13.9 | 5-tert-Butylpyrogallol | - | 1.1 | - |
| Total | | | 96.46 | 78.69 | 92.95 |

- Not detected or peak area less than 1% of total area.

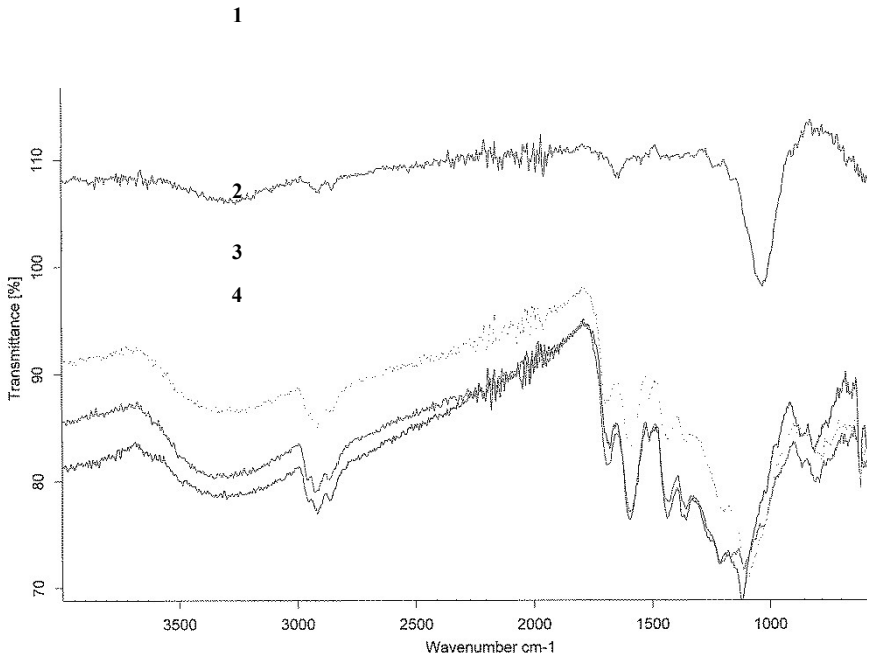
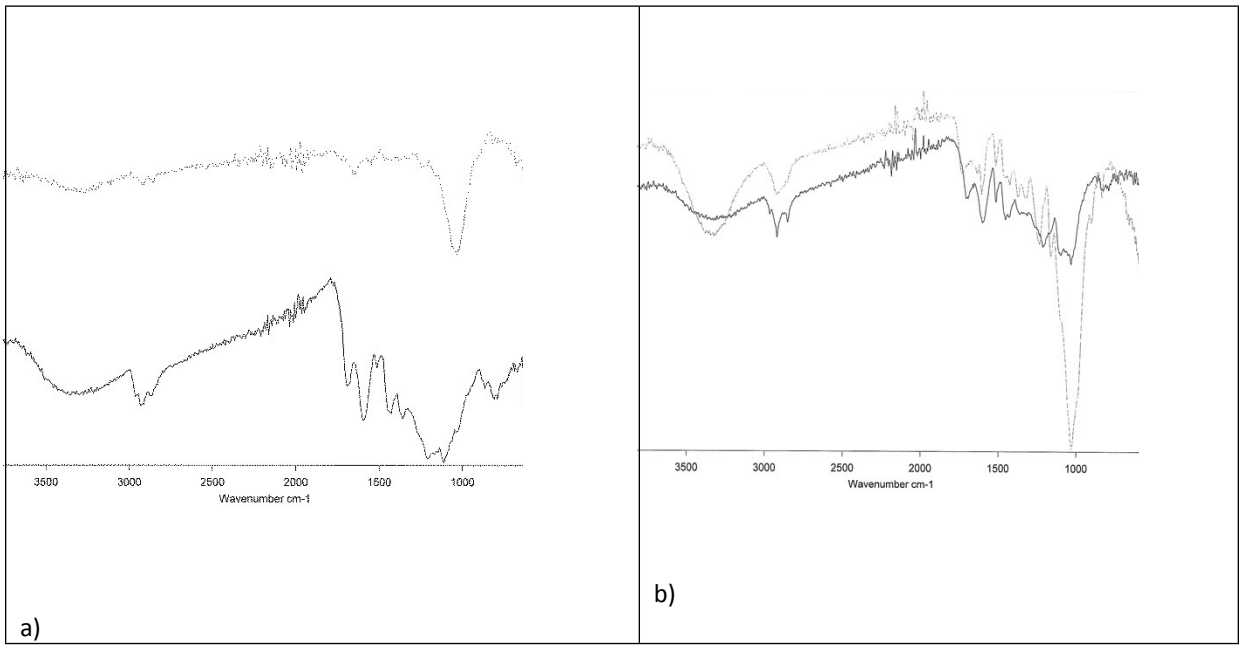



**Fig. S1. FTIR spectra of SR liquefied in various temperatures 1- Raw AD, 2- 250 °C, 3- 300 °C, 4- 350 °C.**



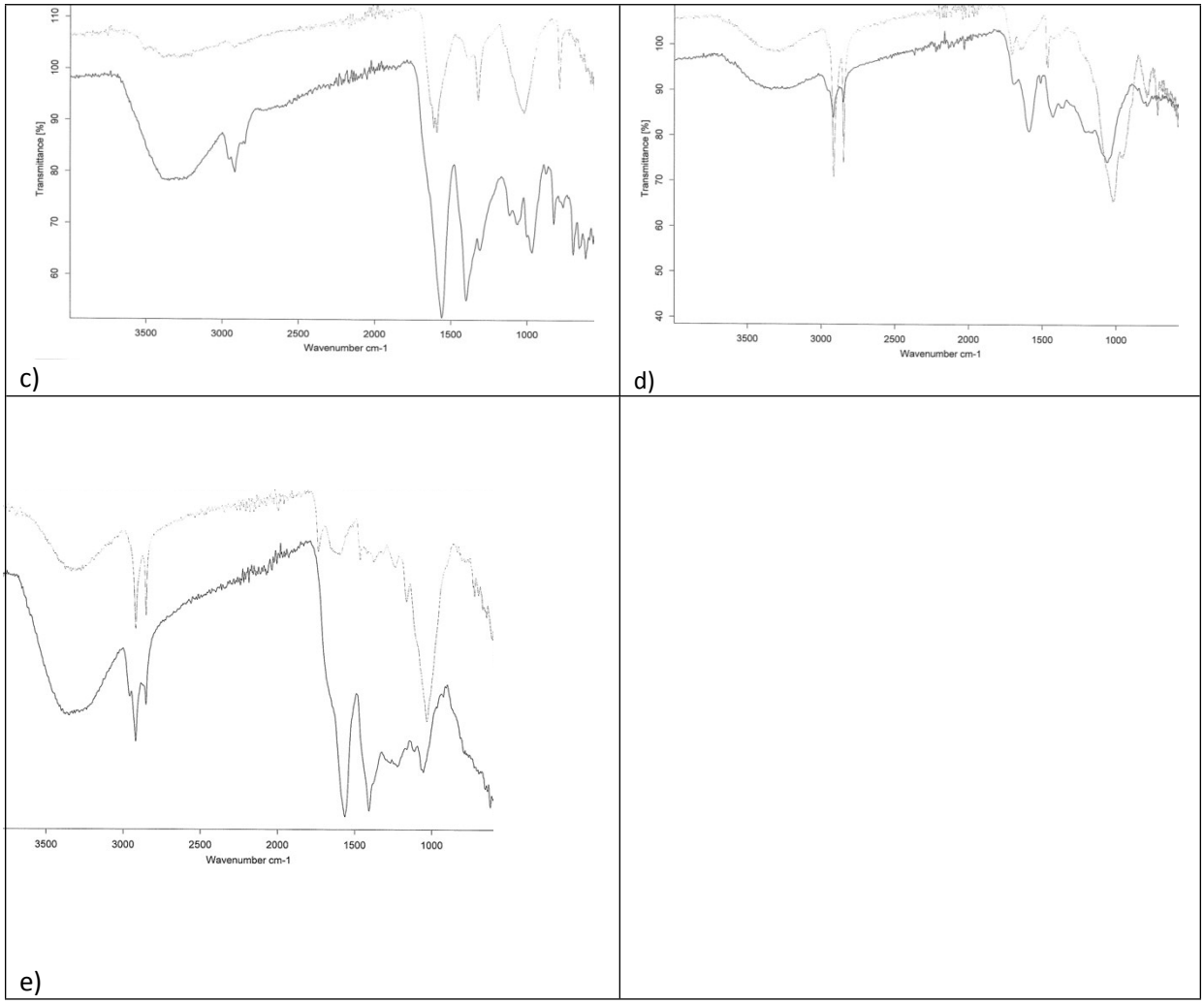



**Fig. S2: FTIR spectra of raw feedstock and SR for various biomasses a) AD, b) Ba, c) BBS, d) FS, e) PT.**