FIGURE CAPTIONS

Figure 1. Schematic of microwave pyrolysis rig

Figure 2. Elemental analysis of native and residue *L. digitata*

Figure 3. a) Dielectric properties (Loss Tangent) and b) TGA (solid line) / DTG (dotted line) of native and residue *L. digitata* as a function of temperature.

Figure 4. a) Incident, b) absorbed and c) reflected power profile during pyrolysis of native and residue *L. digitata* at average set incident power of 180 W

Figure 5. a) Mass loss and b) bio-oil yield of native *L. digitata* at different incident powers

Figure 6. a) Native *L. digitata* pellet and pyrolysed *L. digitata* pellets at specific energies b) 0.6 kJ g\(^{-1}\) c) 0.9 kJ g\(^{-1}\) d) 2.7 kJ g\(^{-1}\)

Figure 7. a) Mass loss and b) bio-oil yield of native *L. digitata* and residue *L. digitata* at 180 W incident power

Figure 8. a) Residue *L. digitata* pellet and pyrolysed residue *L. digitata* pellets at specific energies b) 0.76 kJ g\(^{-1}\) c) 1.3 kJ g\(^{-1}\) d) 2.8 kJ g\(^{-1}\)

Figure 9. Energy yields of native *L. digitata* and residue *L. digitata* biochars against specific energy
Figure 1

2 kW Microwave Generator
HOMER Tuner
Choke
Nitrogen In
Quartz Tube
Seaweed Pellet
Sliding Short Tuner
Waveguide
Condenser
Collection Flask
Figure 2

Element

Concentration (mg/kg)

L. digitata Native
L. digitata Residue
Figure 3

(a) Loss Tangent (Tan δ) vs. Temperature (°C)

(b) Weight loss (%) and Weight change rate (dW/dt %/min) vs. Temperature (°C)

- L. digitata Native
- L. digitata Residue
Figure 4

![Graphs showing incident, absorbed, and reflected microwave power over time for L. digitata Native and Residue samples.](image)
Figure 5

(a) Mass loss (%) vs. Specific Absorbed Energy (kJ/g) for different power levels: 180 W, 320 W, 440 W, 540 W, 650 W.

(b) Bio-oil yield (%) vs. Specific Absorbed Energy (kJ/g) for different power levels: 180 W, 320 W, 440 W, 540 W, 650 W.
Figure 6
Figure 7

a) Mass loss (%) vs. Specific Absorbed Energy (kJ/g)

b) Bio-oil yield (%) vs. Specific Absorbed Energy (kJ/g)

- L. digitata Native
- L. digitata Residue
Figure 8
Figure 9

\[ y = -37.84x + 123.18 \quad R^2 = 0.91 \]

\[ y = -31.453x + 104.78 \quad R^2 = 0.951 \]