

**Poster Presentation**

**Poster 5 - Pyrolysis products yields and thermogravimetric analysis of biochar produced from hardwood and softwood at different temperatures**

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**Abstract**

Pyrolysis technology can be used for producing biochar and bio-oil simultaneously, as an effective and sustainable mean to produce a carbon rich soil amendment and renewable bioenergy. However, pyrolysis products yields are strongly affected by the feedstock and the pyrolysis variables, especially the final temperature. This study was carried out to evaluate the effect of pyrolysis final temperature on solid (biochar), liquid (bio-oil) and gas yields for different sources of biomass and the effect of pyrolysis final temperature on the thermal stability of the solid products (biochar).

For this experiment, two species of hardwood (*Eucalyptus dunnii* and *Eucalyptus urophylla*) and two species of softwood (*Pinus caribbea* and *Pinus taeda*) with particle size between 0.5 and 2.0 mm were pyrolysed with a heating rate of 10°C min<sup>-1</sup> at three different temperatures (350, 450 and 550°C) for 60 minutes in a muffle furnace adapted with Liebig condensers to collect the condensable gases in order to obtain the bio-oil. The thermogravimetric analysis (TGA) was performed using a DTG-60H Shimadzu equipment with a heating rate of 10°C min<sup>-1</sup>, up to 600°C, under a nitrogen atmosphere (20 mL min<sup>-1</sup> gas flow).

As the temperature increased, the biochar yield decreased and the bio-oil yield increased. However, as the temperature increased, the biochar thermal stability increased as well, indicating that these materials would be more resistant to degradation when applied into soil.

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