

## Rubber Wood as a Potential Biomass Feedstock for Biochar via Slow Pyrolysis

**Authors :** Adilah Shariff, Radin Hakim, Nurhayati Abdullah

**Abstract :** Utilisation of biomass feedstock for biochar has received increasing attention because of their potential for carbon sequestration and soil amendment. The aim of this study is to investigate the characteristics of rubber wood as a biomass feedstock for biochar via slow pyrolysis process. This was achieved by using proximate, ultimate, and thermogravimetric analysis (TGA) as well as heating value, pH and lignocellulosic determination. Rubber wood contains 4.13 mf wt.% moisture, 86.30 mf wt.% volatile matter, 0.60 mf wt.% ash content, and 13.10 mf wt.% fixed carbon. The ultimate analysis shows that rubber wood consists of 44.33 mf wt.% carbon, 6.26 mf wt.% hydrogen, 19.31 mf wt.% nitrogen, 0.31 mf wt.% sulphur, and 29.79 mf wt.% oxygen. The higher heating value of rubber wood is 22.5 MJ/kg, and its lower heating value is 21.2 MJ/kg. At 27 °C, the pH value of rubber wood is 6.83 which is acidic. The lignocellulosic analysis revealed that rubber wood composition consists of 2.63 mf wt.% lignin, 20.13 mf wt.% cellulose, and 65.04 mf wt.% hemicellulose. The volatile matter to fixed carbon ratio is 6.58. This led to a biochar yield of 25.14 wt.% at 500 °C. Rubber wood is an environmental friendly feedstock due to its low sulphur content. Rubber wood therefore is a suitable and a potential feedstock for biochar production via slow pyrolysis.

**Keywords :** biochar, biomass, rubber wood, slow pyrolysis

**Conference Title :** ICBBBB 2016 : International Conference on Biomass, Bioenergy, Biofuels and Bioproducts

**Conference Location :** Penang, Malaysia

**Conference Dates :** December 01-02, 2016