

Effects of Torrefaction Process on Chemical Properties of Small Diameter Acacia mangium Wood

ABSTRACT

Torrefaction refers to a thermal process that involves the processing of biomass in a torrefied to produce a "charred" product that can be utilised as a fuel or as a soil amendment. People need energy sources to meet their basic needs and live the kind of life they want. Acacia mangium was selected in order to produce biochar and determine the lignocellulosic affected by the holding temperature and residence time. The chemical properties of torrefied Acacia mangium biochar were investigated at different holding temperatures and residence times. Torrefaction were carried out at several process temperatures, ranging from 200 to 300°C, with residence time ranging from 30 to 90 minutes. According to the findings, the effects of holding temperature and residence time on the chemical properties of torrefied Acacia mangium biochar was carried out. The results show that the chemical properties decreased with an increase in both the holding temperature and residence time except for the lignin percentage content. It shows that as the holding temperature and residence time increased, the lignin content increased. The results shows that the chemical properties are decreased, except for the lignin content, which is not affected by the factors. The chemical bond in lignin content is hard for breaking down. Hence, torrefaction is accountable for the decrease of chemical properties and the breaking of chemical bonds in chemical properties.