

# STUDY OF POLYMER COMPOSITE AS ARTIFICIAL WOOD FROM *ACACIA MANGIUM*

Woratham Ounjittichai, Gapol Choopreedda and Warinya Lomrat

## Abstract

The research objective was preliminary study on polymer composite manufacturing from *Acacia mangium* aged 17 years from Ranong Province. The effect of mixing ratio between Linear Low Density Polyethylene (LLDPE) and *Acacia mangium* was designed to investigate. It was found that particles of *Acacia mangium* use for fabrication had high quantity on screen < 140 mesh, with 39.92% by weight and slenderness ratio at 7.57, Its pH was lower than *Acacia mangium* from Nakorn Ratchasima, *Acacia crassicarpa* and *Acacia aulacocarpa*. The properties of prepared composite were examined. It was found that board properties of high LLDPE quantity in thickness swelling 1 and 24 hours, water absorption 1 and 24 hours and moisture content were lower value but modulus of rupture, internal bond and screw withdraw were higher value. When compared with TIS 876-2547 : Flatpressed particleboards, the produced polymer composites with the ratio between particle : plastic 40:60 and 50:50 were met the standard requirement. In case of analysis of variance, it was found that quantity of particles and polyethylene had significantly effected to physical and mechanical properties.

**Key words :** *Acacia mangium*, Polymer composite , Wood-Substituted Biocomposites