THE EFFECT OF DIFFERENT FILLER LOADING AND TYPES OF FILLER ON THE MECHANICAL AND PHYSICAL PROPERTIES OF WOOD PLASTIC COMPOSITE FROM SAPIUM BACCATUM (LUDAI SP.)

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CANDIDATE'S DECLARATION

I declared that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification. I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Bachelor, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The reducing of log supply had become the biggest problem to the wood industry. The production of wood based panel was the best solution. Wood plastic composite was one of the examples of wood based panel. The aim of this study was to determine the effect of different filler loadings and types of filler on the mechanical and physical properties of wood plastic composite made from Ludai sp. Two types of filler were used virgin polypropylene and mixed of recycled plastics (PP, HDPE and LDPE) which obtained around UiTM Jengka. Three filler loadings were used 30%, 40% and 50% of Ludai sawdust. Sawdust and plastics were blended in the dispersion mixer for 1 hour at 180°C before hot pressed and cold pressed. After that testing on bending, tensile, water absorption and thickness swelling were conducted. Results shown that there were no significant effects of filler loadings on both testing mechanical and physical properties. For types of filler only bending MOR and MOE had significant effect. 30% filler loading shown the highest mechanical and physical properties compared to 40% and 50% while virgin polypropylene showed slightly better than recycled plastics.