MACHINING PROPERTIES OF PETAI BELALANG (*LEUCAENA LEUCOCEPHALA*) FROM UNTENDED STANDS

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ABSTRACT

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The shortages of raw materials are due to the reduction in total area replanted, as most plantation owners are now more interested in planting oil palm. Petai belalang or scientifically known as *Leucaena leucocephala* was selected in this study. The objectives were to determine the effect of planing with and against the grain at various cutting angles and feed rate; and to determine the effect of sanding at various grit sizes and number of passes, on surface quality of petai belalang. Thirty samples were prepared for the planing test with dimension of 20mm × 100mm × 900mm and 10 for sanding test. Planing parameters were cutting angle (25°, 30°, 35°), knife marks per inch of feed rate (20, and 40), and direction of cutting (planing with and against the grain). For sanding test, samples were divided into two groups and being sanded with 100-grit and 320-grit sandpapers at various numbers of passes. Tool cutting direction, cutting angle, and feed rate were found to be significant on several machining defects. In sanding process, sandpaper 320-grit combined with sanding two times gave the best surface quality. Planing against the grain using 35° cutting angle and 20 knife marks per inch of feed speed is recommended for machining petai belalang.