

Abstract

This study evaluated the effect of head to head joint type of *Athel* in core layer of blockboard stripes at three level (Simple diagonal and half and half), in surface layer veneered with three wood species (fir, beech and oak) and glued with three different ratio of melamine formaldehyde/urea formaldehyde resin (0:100, 25:75 and 50:50) on physical and mechanical properties of blockboard and also to evaluate the effect of treatment straw chips in the middle layer of the sandwich panel (without treatment, drying thermal treatment, and boiling water), closing speed of press openings of the middle layer at two levels (5 mm per second and 9 mm per second) and also weight ratio of the shell powder of almond Fruit to Melamine urea formaldehyde resin in three level at (33:67, 18:82, 03:97) have been investigated on mechanical and physical properties of sandwich panels. Statistical analysis and Duncan grouping showed that the type of joint had the significant effect on the modulus of rupture (MOR) and modulus of elasticity (MOE). So the panels having short stripes jointed with end to end half lap joint in core layer had the highest strength properties. The wood species of veneer and MF/UF resin ratio had the effect on the mechanical properties of panels, significantly. Also the statistical analysis and the Duncan grouping showed that the connection type does not significant effect on the physical properties (TS and WA), also was found that the type of veneer and the ratio of MF to the UF resins also has a significant effect on physical properties. Based on the test t, the dispute between the resistances of the symmetrical boards with the parallel and sparse connectivity with centralized connectivity was significant. So that the crossover boards has a higher resistances than the parallel on the centralized connectivity and the crossover boards has lower resistances than the parallel in the sparse connectivity. The board that made by Abies veneer with melamine urea formaldehyde resin with a ratio of 50:50, have more desirable the physical properties and adhesion tensile (Pull-off). Statistical analysis and Duncan grouping showed that the closing speed of Press openings of The middle layer at two levels (5 mm per second and 9 mm per second) And also weight ratio of the shell powder of almond Fruit to Melamine urea formaldehyde resin in three level at (33:67, 18:82, 03:97) variables of manufacturing the sandwich panels had the significant effect on the modulus of rupture (MOR) and modulus of elasticity (MOE). Generally the panels that were made of core layer composed of treatment chips of boiling water 33 percent filler in the adhesive line and closing speed of press openings at 5mm/s have a more favorable bending strength.

Key words: block board, joint type, melamine urea formaldehyde, modulus of rupture, sandwich panel, *athel*



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**Effect of joint type of the middle layer wood
stripes, veneer wood species and ratio of melamine
/ urea formaldehde on the properties of
blockboard**

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