

Abstract:

Agricultural waste, such as bagasse, straw stems from renewable resources as raw materials which can be used in the manufacture of cement particle board. In this study the possibility of making board - cement using stem straw, bagasse, and additive (SiO_2) were studied. In this study, effects of bagasse and cane stalk powder additive and chemical analysis, the initial and final curing time using Vykath, as well as the temperature increased hydration and compressive strength of samples. As in the construction Tkhth-Ha of Saqh-Ny (5 levels) bagasse (5 levels) additive Nanv-Syls in (5-Sth) was used. For this purpose, short-term swelling properties (TS), short-term water absorption (WA), modulus of rupture (MOR), modulus of elasticity (MOE) and internal bond (IB) boards were examined. The results showed that with increasing water absorption and thickness swelling Tkhth-Ha lignocellulosic materials and nano silica (SiO_2) will be increased so that the ratio of bagasse to shoot straw increased water absorption and thickness swelling, and an increase Tkhth-Ha Saqh-Ny the balance of moisture in bonding - cement caused. The experimental results also showed that 75 percent of straw and 25% fiber board with 3% nano has a modulus of rupture and modulus of elasticity than other boards are higher. While IB containing cane bagasse 75/25 percent with 3 percent nano highest IB (65/.) MPa respectively. Overall, the results indicate that the additive nano-silica 3% and the average value of 25% to 75% bagasse cane stalk as appropriate in order to achieve acceptable values respectively.

Key words: Cement -bonded particleboard, Reed, Bagasse, Nano silica (SiO_2), Physical and mechanical properties



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**Improvement of cement – bonded particleboard properties made from giant reed normal
(*Phragmites australis*) and bagasse by nano silica (SiO₂) additive**

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