PREPARATION AND CHARACTERIZATION OF LDPE BASED WOOD-PLASTIC COMPOSITES.

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This research focuses on the preparation and characterization of Low-Density Polyethylene (LDPE) based wood-plastic composites (WPCs). The demand for eco-friendly and sustainable materials has risen due to the global energy crisis and environmental concerns. In response, natural fiber reinforced composites have gained significant interest. This study aims to find a cost effective, durable, and environmentally friendly alternative to current partition board materials. Wood polymer composites made from sawdust and thermoplastics have shown potential as an excellent alternative to existing market offerings.

The research involved the preparation of WPC samples using LDPE and sawdust from jack wood. Various mechanical and physical properties of the WPCs were evaluated based on the ASTM D1037 standard. The results indicated that samples with 40% to 60% sawdust content exhibited sufficient flexural strength to be utilized as partition boards. The highest level of flexural strength was observed at 40% sawdust. The modulus of elasticity and the hardness increased with the sawdust percentage, while the impact strength decreased.

Overall, the LDPE-based wood plastic composites demonstrated promising properties, offering a potential low cost, sustainable, and eco-friendly alternative for partition board materials in various applications. The research contributes to the development of environmentally conscious materials with potential applications in the construction industry and beyond.

Keywords: Wood Polymer Composites, WPC, LDPE, Sawdust