

Physical-Mechanical Properties and Natural Durability of Wood Species from Pantnagar

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Abstract—*The popularity of ecological and renewable materials has grown recently. Currently, there is a political as well as a societal demand for such type of products that require less energy during the manufacturing process and are easy to recycle with minimum impact on the environment. Timber particles or fiber could be one of the solutions. The aim of this research was to evaluate the properties of various wood species from Pantnagar and find its application for various purposes. The study determined the mechanical and physical properties (bending strength, compressive strength, hardness, swelling, impact strength, density, and tensile strength) of the timber. A part of the research was to find the suitability of the timber species for agricultural implements and tools. Standard test methods were applied to determine the density, moisture content and a number of mechanical properties of the selected timbers. In terms of natural durability, the results showed that heartwood of Namuno, Muanga, and Ntholo can be classified as extremely durable to deterioration and degradation caused by fungi and termites. These timbers showed superb performance when untreated samples were exposed in and above ground field tests providing a good indication of the expected service life and outdoor use features. The wood of Metil was classified as non-durable to any of the considered hazards and is not recommended for exterior uses unless treated with appropriate wood preservatives. The study found Ntholo to be a highly dense timber with higher mechanical strength compared to other well-known timbers.*