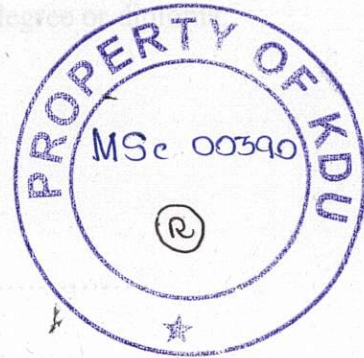


**EVALUATION OF MECHANICAL AND PHYSICAL  
PARAMETERS OF LOCALLY FOUND TIMBER SPECIES IN  
SRI LANKA**

by

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## ABSTRACT

Evaluate the mechanical and physical parameters of locally found timber species in Sri Lanka is critical to the construction field due to the lack of data on structural properties of wood types in Sri Lanka for use for the designing works. Other countries in the world have proper data set of structural properties of timber species in their countries. Unfortunately, in Sri Lanka, still, the evaluations are being carried out by the researchers. Therefore, this study aims to determine mechanical and physical parameters of locally found timber species in Sri Lanka. The main objectives of this study are to evaluate mechanical and physical parameters of locally found timber species in Sri Lanka and to determine suitable timber species for construction activities.

Test samples were collected from state timber corporation and samples were prepared according to the standard sizes in a workshop in Kaldamulla. Every test sample was prepared and executed in accordance with BS 373, 1957. A total of thirty timber species were examined for structural qualities. A compression test was run to determine the compressive strength perpendicular to the grain and parallel to the grain. In addition to that tensile strength, flexural strength and modulus of elasticity of timber species were experimentally evaluated to determine the suitability of timber species. A durability test was carried out to assess durability using two approaches that took weight loss and compressive strength loss into account. Further, moisture content and density of timber species were determined to evaluate physical parameters.

The compressive strength parallel to grain of Bala, Borudamaniya, Damunu, Diyapara, Karabu, Kattakumanchal, Liyan, Malkaralla, Muttikadol, Thammanna, and Wal jambu is good and exceeds 30MPa. For compressive perpendicular to grain, Kattakumanchal, Dambu, Boradamaniya, Kirikon, and Mora have demonstrated quality performance. According to test results, it was found that bending strength of Bala, Boradamaniya, Karambu, Liyan, Kattakumanchal, Malkaralla, Muttikadol, Thammanna and Wal Jambu is better for constructing structures consisting of bending.

Furthermore, Modulus of elasticity and shear modulus was calculated. Each species was found to have lost between 1% and 41% of its body weight. Each species of wood's dry density was assessed using the oven-dry method. High density timber species often exhibit good structural qualities, according to test results. From the 34 species investigated, 23 species were observed to have viable properties to be used as softwood timber in construction. Finally, more than 50% of the identified species showed promising mechanical properties to be considered as alternatives