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Promoting Utilisation of two Light Broad-leaved Lesser-used Timber Species

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Abstract

Myanmar has been practising a selective logging system since 1856, which has creamed forests for years, resulting in dwindling growing stock of commercial timbers. With scarcity of such valuable species and ever increasing timber demand, teak has been intensively planted throughout Myanmar to meet local requirements. Teak plantation has, however, deleteriously affected site quality and productivity, which impedes sustainable development of teak.

On the other hand, there still exist many lesser-used timber species in extensive forests of Myanmar. Augmenting demand for lesser-used species will lead to sustainable forest management. Two timber species *Bombax ceiba* and *Bombax insigne* characterised by their abundance and rapid growth occur throughout Myanmar and are economically and ecologically important for their flosses and conspicuous flowers. *Bombax ceiba* is superior to teak in its flourishing growth in dry areas and will become one of the most important species in rehabilitating central dry zones of Myanmar. However, their timbers are presently underutilised.

To promote their utilisation, physical and mechanical properties of these timbers at green and 12 % moisture content (MC) were investigated as basic requirements to marketing feasibility. Both species shrink on average by 2 % in radial and 5 % in tangential direction from green to oven-dry condition. *Bombax ceiba* swells by 2.3 % (radial) and 5.7 % (tangential), and *Bombax insigne* by 3.6 % (radial) and 7.0 % (tangential) from oven-dry to water-saturated condition. Their MCs are very high as measured after soaking in water. With modulus of rupture (MOR) of 28 $^{N}/_{mm}2$, modulus of elasticity (MOE) of 4018 $^{N}/_{mm}2$, maximum crushing strength (MCS) of 15 $^{N}/_{mm}2$ at 12 % MC and basic specific gravity of 0.23, *Bombax ceiba* is best suited to production of wood composites. *Bombax insigne* is also a light timber with basic specific gravity of 0.33. Its MOR is 60 $^{N}/_{mm}2$, MOE 6880 $^{N}/_{mm}2$ and MCS 28 $^{N}/_{mm}2$ at 12 % moisture content. It is strong enough to use in window and door frames, siding and furniture. Both timbers are nondurable, but their service life can be extended through environmentally friendly modification processes like impregnation with melamine resins, which also results in longer carbon storage as well.

Keywords: Basic specific gravity, mechanical properties, moisture content, shrinkage, swelling

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