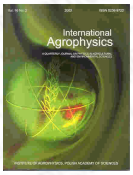

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Effect of loading rate and pre-heating time on the strength properties of African nutmeg (Monodora myristica)

(get PDF)

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abstract In this work, the effect of loading rate and pre-heating time on African nutmeg seed coat was investigated as it affects compressive force, deformation, failure stress, strain energy and modulus of elasticity. Compressive tests were conducted at loading rates of 1, 2.5, 4, 5.5 and 7 mm min-1 at a moisture content of 14%. Further tests were carried out at pre-heating times of 10, 20, 30, 40 and 50 min at a constant temperature of 180°C. Results show that force required to crack open the seed coat varied from 27.08 to 53.6 N at loading rates of 1 and 7 mm min-1, respectively. Also, compressive force decreased from 61.46 to 47.04 N at 10 mm and 50 min of pre-heating, respectively. Deformation of seed coat showed a positive trend as it increased from 0.464 to 0.757 mm at 1 and 7 mm min-1. Strain energy was found to be 0.0082 Nmm at 1 mm min-1 and 0.0266 Nmm at 7 mm min-1.

keywords African nutmeg, loading rate, pre-heating time, strength properties