A Study on the Wood Anatomy of some Nigerian Trees with Potential for Pulp and Paper Production.

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Abstract:

The wood anatomy of sixteen small to medium-sized Nigerian forest trees with potential for pulp and paper production was investigated. Their vegetative morphology was described along with their wood anatomy with a view to finding out their suitability for use as pulpwood. The fibre dimensions and the proportions by volume of various tissues of the wood are reported and the gross wood structure described.

The wood ash contents of all 16 species determined were generally low - between 0.98% for Poltophorum pterocarpum and 2.70% for Gliricidia sepium. The woods of only 8 species were extracted with n-hexane, methanol and cold water. The total extractives contents were generally low. The least, 2.50% recorded for Trema guineensis and the highest, 7.35% for Musanga cecropioides.Specific gravity of the woods of all 16 trees was reported while the woods of 8 of the trees with very good anatomical characteristics and vegetative morphology were pulped for paper.

The eight species include Musanga cecropioides, Trema guineensis, sepium Ricinodendron heudelotii, Manihot glaziovii, Albizia zygia, Delonix regia and Hildegardia barteri. The physical properties of the laboratory hand paper sheets compared with standard factory-made industrial papers showed that these species are good raw materials for paper-making. Musanga cecropioides was outstanding in the physical strength properties of its paper which showed a high Burst Strength of 4.12 kg/cm^2 at pulp freeness of 37 (S.R.) after beating times of 45 minutes.

Keywords: Wood/ paper productions/ vegetative morphology

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