

WOOD ANATOMICAL VARIATIONS IN SOME *TERMINALIA* SPECIES OF ASSAM

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ABSTRACT

The present investigation was carried out on four species of *Terminalia* namely *T. arjuna*, *T. belerica*, *T. chebula* and *T. myriocarpa* to study variations in their wood elements. It was observed that all selected species of *Terminalia* had diffuse porous wood with indistinct growth rings in *T. arjuna* and *T. chebula* and distinct growth rings in *T. belerica* and *T. myriocarpa*. Homocellular rays were present in all selected species of *Terminalia* except *T. arjuna*. Axial parenchyma was aliform, confluent in both *T. arjuna* and *T. belerica*, lozenge aliform in *T. myriocarpa* and vasicentric in *T. chebula*. Tissue proportion measurements of different wood elements showed maximum percentage of fibres and minimum of vessels in all selected species of *Terminalia*. Mean minimum and maximum vessel diameter, vessel element length, vessel lumen diameter, fibre length, fibre diameter, fibre wall thickness, ray height, ray width and intervessel pits were recorded as $122.05 \pm 23.4 \mu\text{m}$ (*T. arjuna*) to $216.5 \pm 54.43 \mu\text{m}$ (*T. myriocarpa*), $310.2 \pm 125.4 \mu\text{m}$ (*T. arjuna*) to $482.0 \pm 125.8 \mu\text{m}$ (*T. chebula*), $10.4 \pm 3.0 \mu\text{m}$ (*T. chebula*) to $27.8 \pm 4.9 \mu\text{m}$ (*T. myriocarpa*), $162.5 \pm 273.9 \mu\text{m}$ (*T. chebula*) to $1176.0 \pm 263.3 \mu\text{m}$ (*T. arjuna*), $125.4 \pm 40.5 \mu\text{m}$ (*T. chebula*) to $256.9 \pm 59.4 \mu\text{m}$ (*T. myriocarpa*), $1.8 \pm 0.8 \mu\text{m}$ (*T. chebula*) to $2.3 \pm 0.9 \mu\text{m}$ (*T. arjuna*), $179.2 \pm 60.5 \mu\text{m}$ (*T. myriocarpa*) to $251.8 \pm 97.6 \mu\text{m}$ (*T. chebula*), $23.2 \pm 5.8 \mu\text{m}$ (*T. belerica*) to $27.7 \pm 6.0 \mu\text{m}$ (*T. chebula*), $7.62 \pm 1.52 \mu\text{m}$ (*T. belerica*) to $13.9 \pm 9.2 \mu\text{m}$ (*T. myriocarpa*). Minimum and maximum vessel frequency were observed as 2 per mm^2 (*T. myriocarpa*) and 14 per mm^2 (*T. chebula*), while minimum and maximum rays per mm were observed as 8 per mm and 16 per mm in all selected species of *Terminalia* except *T. myriocarpa*. Tyloses were observed only in *T. myriocarpa*. Analysis of variance showed that significant differences exist among wood element dimension of all selected species. Fibre length showed positive and significant correlation with vessel length and wood density and negative and significant correlation with fibre diameter but a non significant and negative correlation with fibre wall thickness.

KEYWORDS: Diffuse Porous, Tissue Proportion, Wood Elements, *Terminalia* Species