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Studies on the Dimensional Variation of Wood Components Across the Tree Trunk of Ailanthus Excels Roxb. and its Ecological Importance

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Abstract—*Growth and development of the vascular plants depend on the transpiration rate, the frequency and dimension of the vessels determine the transpiration efficiency of xylem thus it is clear that the existing ecological condition play major role in overall growth and development of plant. It mainly happens due to the activity of lateral meristem called vascular cambium that produces secondary xylem and secondary phloem. This aspect however is still unexplored with reference to tropical species, especially to the Indian tropical trees that's why the present work has been designed to analyze ecological wood anatomy of Ailanthus excelsa. Thus, its concluded that the vulnerability ratio of the wood consistently decreased with the age of the tree, the magnitude of difference (8.71% - 23.13%) was generally decreases with tree age, periphery to pith with minor fluctuation in few blocks. Mesomorphic ratio increase from pith to periphery with growing age of the plant on the whole. The magnitude of difference (3.40 % -49.82%). The ratio of the length and vessel elements(f/v) show consistently decrease with increasing age of the plant (pith to periphery). The magnitude of the difference 8.71%-23.13% was in general enhanced with tree age.The vessel elements that showed gradual decrease in length while increase in width from periphery to pith. The frequency vessel was comparatively higher in the wood closer to the cambium.*

Keywords*: Alinthus, vessels, ecological effects, xylem.*