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RESEARCH ARTICLE

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## Performance evaluation of different tree species for carbon sequestration under wasteland condition

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**ABSTRACT :** A study was conducted to identify suitable fast growing trees under wasteland condition for carbon sequestration. Accordingly, five fast growing trees namely *Tectona grandis* Linn. , *Gmelina arborea* Roxb., *Dalbergia sissoo* Roxb., *Bambusa vulgaris* var. *vulgaris* and *Swietenia macrophylla* king were selected for field study under wasteland condition. The performance of these trees was assessed with biometrical traits (height, basal diameter) and eco-physiological traits (transpiration, photosynthesis, intercellular CO<sub>2</sub> concentration and stomatal conductance). Among the five species, *Dalbergia sissoo* exhibited highest growth, productivity and also superior in ecophysiological traits suits for carbon sequestration. The tree species, *Bambusa vulgaris* var. *vulgaris* performed well next to *Dalbergia sissoo* interms of biometric, productivity and eco-physiological parameters. The lowest biometric and productivity was observed in *Gmelina arborea*. The tree species, *Dalbergia sissoo* and *Bambusa vulgaris* var. *vulgaris* are highly suitable for afforestation in wastelands to attain carbon sequestration benefits.

**KEY WORDS :** Tree species, Wasteland, Carbon Sequestration, Eco-physiological traits

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