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Commercial Importance of *Melia dubia* Cav.

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Abstract

The unique characteristics of wood have made it a suitable material to wood-based industries with high productive potential and economic returns. The increase in population and shortage of timber species are the one of the major causes of poverty. To meet the market demand and subsequent needs of local communities, plantation species are gaining attention. *Melia dubia* Cav. is a fastest growing and deciduous tree species, popular due to its high demand in timber industries. It has excellent strength-to-weight properties. These species can shift the pressure on forests and help to meet the booming demand of wood in emerging economies. The multiple use of Malabar neem makes it an alternative to major timber yielding species.

Introduction

India holds nearly 18% of the global human population, which creates pressure on forest resources. The economic growth of the country is associated with an increasing demand for wood and wood-based products. The forest policy reform has also creates additional demand for wood-based products. The supply of industrial raw materials for pulpwood, plywood and furniture is far behind the demand. The increasing population creates a shortage of timber species in the world. Therefore, to meet the market demand plantation species are gaining attention. The choice of best alternative tree species to meet the need of industries is the need of the hour.

Malabar neem (*Melia dubia* Cav.) is an industrially important fast-growing multipurpose tree species, belongs to Meliaceae family attains maturity at four to six years. It is a low maintenance crop which yield maximum bio-mass in relatively shorter period of time. It is well grown under irrigated conditions. *Melia dubia* is a light demanding and tropical deciduous tree that grows up to the height of 20 m with straight bole, whitish grey bark and self pruning ability. The tree grows well in sandy loam and lateritic soils with an annual rainfall of 800 mm. The gregarious flowering occurs from March to February. The ripening of fruits occurs during November-February in the next year. The drupe fruit has 1-6 seeds and black in colour. Mature fruits have a weight of 130-140 kg⁻¹. It has a wider adaptability to different climatic and edaphic conditions. The wood is suitable for manufacturing plywood, pulp or paper and engineered products.

Distribution

Melia dubia is widely distributed in India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and Myanmar. In India, Malabar neem is grown at an altitude of 1500-1800 m, covering the areas of Sikkim, Western Himalayas, Khasi Hills, North Bengal, Orissa, and Western Ghats.

Economic Importance

Forests are the significant source of raw materials for wood based industries. Wood based products have been used by societies for thousands of years around the world. But, due to excess use of resources, the forests in India are denuded at an alarming rate. India is facing severe shortage in demand and supply of timber in recent years. It has been estimated that the demand for timber has grown from 62 million cubic meters to 153 million cubic meters and supply for timber has increase from 30 million cubic meters to 60 million cubic meters in 2020. The plantation timber species has large variation in wood properties due to its anisotropic nature and environmental conditions.

In recent years, *Melia dubia* has become popular among both public and private sector planters. *Melia dubia* is a fastest growing and deciduous tree species, popular due to its high demand in timber industries. These species has a potential to shift the pressure on forests and help to meet the booming demand of wood in emerging economies. The multipurpose uses of Malabar neem make it a suitable alternative to commercial timber species. It is a suitable tree for agroforestry with a life cycle of 8 to 12 years. The tree is gaining economic importance both in domestic as well as in international markets. It is a highly recommended raw material for wood based industries due to the presence of high fiber strength. The wood also find its use in construction, agricultural implements, match boxes and furniture. In addition to the commercial importance, it also has many medicinal properties and helps to maintain the rise in atmospheric temperature. *Melia dubia* is getting lot of attention nowadays, as it a source of great income with low maintenance. Its high calorific value makes it a viable source of fodder. The plantation species like *Melia dubia* plays a crucial role in Indian economy. It is

assumed as an alternative species for pulp preparation in paper making industry (Parthiban *et al.*, 2009). The wood is also used for making planks, packing cases, structural purposes, and agricultural implements. It is ideal for musical instruments, tea boxes and plywoods making. It is a good source of fuelwood in southern India. The trees also contribute in atmospheric carbon emission and helps in mitigating the impacts of climate change (Thakur and Chauhan, 2008).

Conclusion

M*elia dubia* wood finds its major utilization in plywood industry. It has been screened as an alternative species for pulp in paper industry. The adaptability of *Melia dubia* to different agro-climatic conditions along with its fast growth provides a substantial flow of income to the planters. The tree has multipurpose uses in plywood, pulp wood and timber industry. The wood also finds use in construction, agricultural implements, match-boxes and furniture industry. Thus, the species has an assured market value due to its multipurpose utilities in the wood-based industries.

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