THE ANDAMAN RED WOOD TREE *PTEROCARPUS DALBERGIOIDES* ROXB. - AN ECONOMIC TIMBER PLANT

P.S.N. RAO

Botanical Survey of India, Kolkata

INTRODUCTION

The Andaman & Nicobar Archipelago with about 500 islands and islets constituting a total land area of 8,290 sq. km. (Lat. 6°45'-13°45'N and Long. 92°15'-94° E) lies in the Bay of Bengal. The isles better known as the 'green emeralds' owing to their being clothed with the extensive forest canopy to an extent of 86 per cent of the non-contiguous land area harbour more than 2,000 angiospermic plant species and almost equal number of cryptogamic plant species. The flora of the Bay islands is unique to India because of the tropical humid climate and the insular nature of the territory thus eliciting immense botanical interest (Rao, 1996).

The conspicuous tree flora with more than 600 species has been the mainstay of economy in the islands and the number of tree species earmarked for the timber extraction has risen from four to forty during the last five decades owing to the inhabitation of more and more islands perhaps exceeding the carrying capacity of the islands. The growing tourism industry too has exerted tremendous pressure on almost all the types of wood viz. ornamental, hard and soft woods for development and today probably the wood based industries in private sector have employed largest number of persons while many more are indirectly associated with these units for sustenance. Among the timber yielding species, *Pterocarpus dalbergioides* Roxb. whose vernacular name in Burmese is 'Padauk' and belonging to the family Fabaceae (Papilionaceae) is the principal timber tree endemic to the Andaman not occuring even in the Nicobar group of islands nor in the rest of the world. The wood, which is used for innumerable purposes, varies in colour (Parkinson, 1923) from a light brown, known as "off-colour", to a deep reddish-brown, rich red, or a gorgeous crimson, known as "good-colour" The mature tree of about fifty years old is supposed to yield the wood of gorgeous crimson which is most valued of all the types of 'padauk' wood. As the 'padauk' takes good polishing and is termite resistant the wood is often considered superior to the 'teak' in India both in terms of price and utility and more than ninety per cent of those who are employed in wood based industries work exclusively on 'padauk'.

'Padauk' endemic to Andaman group of islands, grows in deciduous and semi-deciduous forests in association with *Terminalia procera, T. bialata, T. manii, Canarium euphyllum, Sterculia companulata, S. villosa* etc. together with which forms what is known as 'Padauk' forest. Of late, the local forest department has been making efforts to raise the species on a large scale in Andaman islands, and to a limited extent in Nicobar group of islands as well but with limited success.



Fig. 1. *Pterocarpus dalbergioides* Roxb. cultivated in South Andaman

Taxonomy :

Pterocarpus dalbergioides Roxb. ex DC., Prodr. 2 : 418. 1825. Fabaceae (Papilionaceae) (Fig. 1).

Large deciduous tree, *ca* 40 m high; branches stout, ascending and spreading, often with very large buttresses; juice blood-red. Leaves imparipinnate; leaflets about 8, alternate, ovate

ovate-oblong to ovate lanceolate to ovate elliptic at apex, rounded to slightly cuneate at base; lateral nerves 5-11 pairs. Inflorescence in panicles *ca* 19.5 cm long. Flowers *ca* 1.5 × 7 cm, flat, stalked. Seed reniform.(Fig.3).

Fl. & Fr.: June-Mar.

Ecology : Mostly found on the soils derived from sedimentaries consisting of sandstones and conglomerates in the natural habitats of deciduous forests.

Commercial exploitation : As the Andaman Padauk is highly valued in the isles for the last 4-5 decades for ornamental and decorative work (Fig.2), panelling, parquetting, balustrades, Pullmam cars, ship cabins and saloons and in heavy carpentry such as billiard tables, counters, piano cases and a very high class furniture, it has distinguished itself as the principal timber tree of the Andamans bringing out virtually the economic revolution in the isles. Padauk wood is extensively used also in cabinet work, turnery, tool handles and for making gun carriages, boats, carts, frames of buggies, door frames, beams and pile work. Despite its large scale utilization and popularity in the archipelago, it seems to be little known elsewhere in the country until recently.

Conservation : The distribution range and the endemicity of *P. dalbergioides* are well known. Unplanned exploitation without matching efforts to regenerate by employing both nursery-raised and natural seedlings would result in the depletion of natural stock. The viability of padauk seeds for a long period of 6-7 years and the resistance of the trees to the diseases except to white pocket rot and beetle larvae should be an added advantage in cultivating the species on a large scale. As reported by Ganapathy and Rangarajan (1964) however, the germination is about 45% but only half of these seedlings survive ultimately.

Although, the species is neither threatened nor vulnerable in the isles despite its immense use the number of mature trees at any given time has drastically dwindled. If the species is to be utilised on sustainable basis the *in situ* and *ex situ* conservation measures alone are not enough but mass scale cultivation needs to be thought of for ensuring more extraction of ornamental wood to meet the increasing demand.

Padauk is usually found in large numbers on soil derived from sedimentaries consisting of sandstones and conglomerates in its natural habitat where the rainfall is around 3000 m with the climate damp for the greater part of the year. It is observed that the natural regeneration occurs in openings caused by fellings made at the time the padauk seed is ripe on the tree. It is assisted by removing the undergrowth completely every year for three or four years till the young crop is established. Whole pods/ seeds are sown for artificial regeneration. According to Ganapathy and Rangarajan (1964) the growth rate of natural padauk trees is rather slow but is fairly high in plantations. It seems it is one of the species recommended for cultivation in the plains and foothills of North Bengal and Assam (Anonymous, 1969). The author has observed that in Andamans the seeds are viable for more than five years and the transplantation of nursery raised one year old seedlings with 2-3 pairs of leaves are preferred for direct sowing.

Constraints : The flora of oceanic islands of



Fig. 2. Ornamental and decorative items made of Padauk



Fig. 3. Light-weight reniform seeds of Padauk with dispersal mechanism

Andaman & Nicobar is unique to India because of the tropical humid climate and the insular nature of the territory. The fragile natural forest ecosystem is susceptible to various anthropogenic and developmental activities. In this context it is likely that even a slightest ecological imbalance introduced in the form of monocultures and plantation crops may endanger the natural wild growth of other native plants and the impact will be more in case non-indigenous species are introduced in the isles as monocultures.

Padauk being a slow growing tree it takes about 35-40 years growth period for the extraction of good quality timber and probably very few people in the private sector come forward for cultivating this species as a plantation crop. In order to overcome such constraints the forest department can initiate the plantation programmes in the forest clearings on selected islands. Efforts can also be made to cultivate in the mainland too where climate is suitable. To minimise the maturity period, other options such as tissue culture and hormonal treatment can be tried at laboratory level.

Economics : The basic statistics brought out by the Directorate of Economics & Statistics, Andaman & Nicobar Administration show that the yearly production of ornamental wood in the isles is around 5,000 cubic meters presently exclusive of the buttresses and large burrs whose wood is also of excellent colour and

beautifully figured (Anonymous, 1996). The fixed price of padauk wood by the Govt. saw mill is about twelve to thirteen thousand rupees per cubic meter depending on the category. Most of the padauk timber is utilised by the islanders and the isles total population is around four lakhs. The ornamental wood (marble wood) from other species such as DIOSPYROS available is almost negligible though it is most elegant and much sought after in the Bay islands.

ACKNOWLEDGEMENTS

The author is thankful to the forest department, Port Blair, Andaman & Nicobar Islands and the Directorate of Economics and Statistics, A & N Administration for rendering necessary assistance. Sincere thanks are also due to Dr. N. P. Singh, Ex-Director, Botanical Survey of India, Kolkata for encouragement.

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