Chapter - 1

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The Indian subcontinent is remarkable for its exceptional level of biological diversity at broad habitat level and within these habitats at species level. About 75 million hectares of the land area in India is forest (Singh and Viswakarma, 1997). India is a vast country with rich diversity of biotic resources and is ranked one of the 12-megadiversity countries in the tropics (McNeely et al., 1990). This rich biodiversity in India is largely due to her varied physical environment in terms of latitude, longitude, altitude, geology and climate (Rojers, 1991). Apart from this status of megadiversity country India harbours two important global hot spots, Western Ghats and Eastern Himalaya (Myers, 1990).

The mountains along the west coast of peninsular India, the Western Ghats, constitute one of the unique biological regions of the world and is one of the tropical biodiversity hot spots in the world (Myers et al., 2000). The Western Ghats extends from the southern tip of the peninsula (8°N) northwards about 1600 km to the mouth of river Tapti (21°N). Among the various bio-geographic zones of India, Western Ghats contain high level of endemism. Nearly 2000 species of higher plants, 92 species of amphibians, 89 species of reptiles, 15 species of birds and 12 species of mammals are endemic to Western Ghats (Gadgil, 1984; Ahmedullah and Nayar, 1987; Swengel, 1991; Daniels, 1993, 1997; Gupta, 1998; Manickam, 2004). Apart from biological diversity, the region boasts of high levels of cultural diversity too as many indigenous people inhabit its forests. The unique features of Western Ghats make it the most suitable region for eco-tourism also (Joseph, 2004).
The Nilgiri Biosphere Reserve, located in Western Ghats of Palghat Gap (10° 45′ - 12° 5′N latitude and 76° 10′- 77° 10′E longitude) spreads over an area of ca.5520 km² is encompassing several National Parks and sanctuaries. The existence of different environmental conditions leads to establish various vegetation types like tropical wet evergreen forests, dry deciduous forests, moist deciduous forests, thorny scrub jungles and pockets of sholas with associated grasslands.

The sholas are the residual forests confined to the sheltered sites such as the valleys, glens, hollows and depressions where moisture is good are present in all the basins of the Nilgiris (Meher - Homji, 1969). They however occupy a limited area, generally occur as gallery-forests along water courses, varying in width from a few meters to 400m (Puri et al., 1989).

In Nilgiris, sholas are distributed in the altitudinal range between 1600 and 2300 ms above msl. Of their many fascinating attributes, stuntedness is very characteristic. The maximum height of the canopy tree rarely exceeds beyond 15 to 20m. In the upper slopes of the high ranges of the Western Nilgiris, where the south-west monsoon winds are violent, the sholas rarely exceed 10m. The occurrence of sholas is shaped by two pre-conditions (i) presence of adequate amount of moisture and (ii) protection from the fury of the winds.

Sholas are basically rain forests with both temperate and tropical elements. They have about 2 or 3 stories of woody strata, which are rich in epiphytes, mosses, orchids and ferns (Puri et al., 1989). The tree species like Syzygium arnottianum, Cinnamomum wightii, Elaeocarpus oblongus, Pygeum gardneri, Schefflera racemosa, Linociera ramiiflora, Litsea wightiana, Balanocarpus utilis, Hopea parviflora, Artocarpus hirsuta, Salmalia malabaricum, Hardwickia binnata etc., are commonly occupying the upper storey. Though not well defined there is a second stratum in the sholas with
trees of 7-12m height and a shrubby stratum with the dense and profusely branched species like *Ilex wightiana*, *Rapanaea wightiana*, *Ternstroemia gymnanthera*, *Symplocos* spp., *Microtropis* spp., *Strobilauthes* spp., etc. *Cyathea latebrosa* is the only tree fern at the second layer in the montane stage of sholas. The second storey is very rich in epiphytes also. Herbaceous cover is more or less continuous and is rarely dense. Floristically it is rich in Urticaceae, Orchidaceae, Lamiaceae, Balsaminaceae and ferns. Further, sholas are harbouring many endemics plants (*Disporum leschenaultianum*, *Smilax wightii*, *Swertia beddomei*, *Biophytum polyphyllum* etc.), rare and threatened species (*Anaphalis beddomei*, *Ceropegia pusilla* etc.) and endangered species (*Buchanania axillaris*, *Elaeocarpus recurvatus*, *E.munronii* etc.) (Aiyar, 1932c; Sharma *et al.*, 1977 Ahmedullah and Nayar, 1987; Nayar and Sastri, 1987-1990).

Sholas as a rule are very slow growing and it may take tens of thousands of years to assume its best and complete shape (Puri *et al.*, 1989). They were erroneously considered as fossil ecosystems and it is now concluded that they are capable of active regeneration if adequate protection is accorded to them. The timber value of shola trees is very poor. Sholas are ecologically rich and infact it is one whole complex ecosystem. Damages to one part affect all the other portions also. The canopy of sholas is dense with direct sunlight never penetrating inside. The sum total of the biomass inside a shola is probably one of the best organized from the point of optimal utilization of energy, soil nutrients, moisture, symbiosis and even micro-climatic manipulations and gaseous exchanges. One other queer feature of the sholas is that frost never occurs inside of them despite the fact that they occur in some of the most frost prone areas like ridges and ravines etc. This is because of their specialized micro-climatic and hygrometric features (Bor, 1942).
The shola trees are shallow rooted. Their richness is due to effective recycling. The dead organic matter is decomposed quickly and is reabsorbed. In the sholas of Nilgiris, the surface soil contains high amount of nutrients due to the rapid rate of decomposition (Jasbir Singh, 1990). The miracle of the sholas for which men have to be grateful in their water conservation properties and for their natural function of giving rise to springs which are the basis for streams and river systems.

Apart from taxonomical and ecological importance, the sholas are having other importance as well. In addition to floristic wealth, the shoals remained as ideal habitats for diverse types of wild animals also. Further, owing to the existence of well-established ecological balance the sholas are being the origin places of many perennial rivers and hence the agricultural prosperity in the low level plains. Among the different life forms present in the sholas, the rich variety of herbs and other plants at lower stratum are the bioresources of economical and social importance (Prasad and Balasubramanian, 1996). Owing to these significance, since last few decades, these floristic wealth in shola vegetations of Nilgiris are depleted through the influence of heavy biotic pressure (Parthasarathy, 1999). Unplanned urbanization and un-regulated tourism in Nilgiris, have made an already strained environment. The newly established human settlements and population increase all over the Nilgiri biosphere exert enormous pressure on land and its resources including its biotic wealth. Some of the intrinsic factors like poor seed output, less viability, short period of dormancy, lower germination percentage, lesser surviability etc., are also responsible for the rarity and endangerment of certain species in the communities despite the habitat protection. Hence, the species of higher demand those naturally with poor ecological status in the sholas of Nilgiris need conservation attempts.
The effective implementation of conservation measure for the species in the community includes three phases. The first step involves the identification of ecologically weaker plants which need conservation. The second step aims to diagnose the reasons responsible for weaker position of such plants. The third step involves the development of appropriate macro / micro propagation strategies to enhance the population of respective species in the communities.

In light of these facts, ecological investigation at community level was undertaken in four shola forests at Manjur region, the Nilgiris, Western Ghats with the following objectives:

i) to identify the herbs of poor ecological status with higher economic importance in the communities of sholas.

ii) to diagnose the factors responsible for the poor ecological position of such economically important herbs through studying their autecological characters like phenological behaviours, population dynamics, reproductive potential and biomass allocation to reproductive parts, etc.

iii) to standardize the MS medium for *in vitro* regeneration of a case plant which is having weaker establishment in the shola understorey.