

THE STUDY OF UNDERGROWTHS OF THE FORESTS OF EAST PAKISTAN FOR EXPLOITATION AS MEDICINAL PLANTS

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The term 'undergrowth' is generally applied to those vegetations which grow under the canopy of other tall plants. Any one who has been in a forest, especially tropical rain or sub-tropical deciduous forest, must be quite familiar with the magnificent and luxuriant growth of the undergrowth of such forests.

All the three types of forests mentioned in the previous paper, viz., the Burma type, the tidal forests and the low level plain "Sal" forests, have undergrowth vegetation. Of these the Burma type forests are the most important from the point of their undergrowths, being evergreen, and semi-evergreen. The deciduous forests occur all along the eastern boundaries of East Pakistan from Sylhet district down to Chittagong Hill Tracts and Chittagong districts. The valley of Sylhet resembles the Assam valley in its general features. It is an open plain, scarcely raised above the sea level, which is three hundred miles distant, and presenting here and there a few scattered hills: below it extend the Jheels of East Pakistan and contracts in its upper parts, as the spurs of the Tippera Hills encroach upon it, separating fertile plains by narrow ridges covered with dense forests. The rainfall in Sylhet is very high, more than 200 inches. The vegetation of the open plains of Sylhet is the same as in other parts of Bengal, and on the wooded hills we find flora closely resembling that of Assam. In the moister forest, Anonaceae are extremely numerous and species of calamus, tree-fern, and Pandanus are equally so. Camellia, Kadsura, Sabia, Rubus, and other plants abound and are usually considered as indicating a certain degree of elevation. The low hills which rise out of the plain in the neighbourhood of Sylhet, and several other parts of the district, are covered with brushwood, among which are many remarkable plants, as *Licuala peltata*, *Adelia castanicaarpa*, *Trophis*, *Connarus*, *Grewia*, *Bridelia*, *Gelonium Moacurra*, *Mussaenda*, *Guettarda*. There are also some shrubs which here find their northern limit, but which are common in similar localities in Chittagong, e.g. *Dalhousiea* and *Linostoma*. In the grassy sward which covers the swampy plains interspersed among these hills, *Styloidium kunthii*, a minute annual is found, which is interesting as the most northerly species of the eminently Australian order to which it belongs.

The districts of Chittagong Hill Tracts and Chittagong are throughout hilly. Along the sea coast there is in general a narrow belt of level ground, and the basins of the rivers are usually wide and well cultivated for a considerable distance inland. In the upper part of their course, however, they are hemmed in by hills, and a broad belt of impenetrable forest occupies the interior, forms an impassable boundary between East Pakistan and Burma. The climate is similar to other parts of East Pakistan. From the proximity of the sea and the situation within the tropic, the winter is very mild, and the atmosphere always humid. The rainfall during the monsoon is about the same as in other districts of East Pakistan at least on the sea-coast and in its immediate vicinity, averaging 86 inches annually at Chittagong; on the higher ranges in the interior it is much more considerable. The low hills are covered to a great extent with bamboo jungle, extending impenetrably for miles and being almost uninhabited. The southern slopes are more humid, as they are fully exposed to the rainy wind.

The vegetation of the area is very similar to that of Sylhet. The higher hills are covered with dense but often dry forest, and the lower ones with brushwood. The undergrowth flora find most congenial and favourable conditions for their luxuriant growth under *Dillenia*, *Pongamia*, *Mesua*, *Gordonia*, *Cycas*, *Linostoma*, *Melastoma*, *Litsaea*, *Tetranthera*, *Scepa*, *Calamus*, *Wikstroemia*, *Ixora*, *Adelia*, *Caesalpinia*, *Mussaenda*, *Guettarda*, *Gelonium*, *Jasminum*, *Memecylon*, *Congea*, *Aegle Marmelos*, *Amoora*, *Gaultheria*, *Figs* and *Micro-melum*. In the damp woods many *Calami*, *Wallichiae*, *Arecae*, *Lagerstroemiae*, *Meliaceae*, *Leguminosae*, *Terebinthaceae*, *Verbenaceae*, etc., are growing in great luxuriance.

In the dry forest, the undergrowths are not so numerous, but there are many perennial climbing plants which become lianes on the forest trees as their support.

The lowland plain "Sal" forests are not so rich in their undergrowths throughout the year. But during rainy season the annual herbs of many species grow out and finish their lives with the advent of the winter. These forests have also a number of climbing plants and lianes.

The tidal forests are not particularly rich in undergrowth floras. Yet they have also quite a number of species growing as undergrowth, some of which are climbing plants and creepers, e.g., Derris.

Unfortunately, in spite of the richness of the undergrowth flora of our various types forests, upto now, there has been no serious attempt to undertake a thorough, proper and systematic study of the undergrowths so as to prepare a floristic composition, in the first instance of the undergrowth of the different forest types of East Pakistan. Of course, such study will require trained personnel competent to undertake such study, besides, there are questions of funds and facilities for equipment, accommodation, travelling expense and transports etc. If however, all these are forthcoming from some sources, then a completion of the preparation of the floristic composition of the undergrowths will give us the opportunities to determine correctly the richness of the medicinal and other economic plants for exploitation. Our country is on the threshold

of economic development, and is eager to proceed with as much speed as possible. But in absence of the basic knowledge regarding her natural resources, no sound step for undertaking economic development can be worth-while.

The need and importance of pharmaceutical industry in the economic development of the country need not be stressed here. The author would only emphasize that in order to build up the pharmaceutical industry of the country, one of the most important basic requirements is to arrange without further loss of time the study of the floristic composition of the undergrowths of our various forest types by competent botanists.

It must be mentioned here that the study will help not only to develop our pharmaceutical industry, but also to develop uses of the undergrowths for many other purposes like ornamental, horticultural, green house and hot house plants. There is demand for these not only in the country, but also from abroad.