



## ***Chapter :- I***



## **INTRODUCTION**

## I. INTRODUCTION

Forests are one of the most important renewable natural resources and deserve a prominent status in the national economy. It is evident that the existence and stability of forests are very much intimately related with the environment. It is, therefore, obvious that interest in the knowledge of natural vegetation should increase with the spread of education, industrialisation and promotion of tourism. But the increasing awareness has remained far from being satisfied for a long time, due to lack of literature on this subject. Forest plays an important role in the cycle of oxygen, carbon-dioxide, nitrogen and animals. Forests act as the buffers maintaining the balance between environment and the living world on this planet. However, the present attitude of mankind towards the forestry has become a threat to this balance.

Forests are classified on "functional basis" as Protection Forests, National Forests and Village forests according to the national forest policy, 1952. According to this policy;

- 1) Balanced and complimentary land use proposed. Each type of land to be allotted to that use under which it would produce most and deteriorate the least.
- 2) Tree lands to be created wherever possible for amelioration of physical and climatic conditions and to promote general well being of people.
- 3) One third of the total geographical area to be under forests.

4) Indiscriminate extension of agriculture is opposed.

5) National forests to be managed on the basis of the principle of progressively increasing and eventually, the highest sustained yield.

6) Protection of nation's wild life emphasized (the wild life, (Protection) Act, 1972).

7) Checking denudation of hill regions on which depends perennial flora of water courses, whose basins constitutes the fertile core of country, arresting erosion.

8) Ensuring dependable facilities for grazing and adequate supplies of small timber for agricultural implements.

9) Obtaining sustain supplies of timber and other food products for the industries, communication and defence.

This forest policy formulated by the Government of India, Ministry of food and Agriculture resolution dated 12th May 1952. Thus, forests in our country are maintaining and developing by forest departments according guidelines mention in the policy. For propogation, of forest tress, there are a number of nurseries run by this department, from which for plantation seedlings are available. But when we come in contact with these nurseries. It can be observed that, the working of preparation of seedlings are not on the scientific basis. Many forest tree seeds are not germinating well may be due to dormancy. Methods used for germinating seeds are not having any scientific base. So, economically there is great loss, as well as arrest in development programme of forests at different places. Because of constant visits to nursery and discussion with District Forest Officer, at Satara. We were

facinated to look into the problems. Therefore, we thought it worthwhile to undertake "Germination studies in forest trees of Maharashtra".

The literature regarding the physiological studies of seed germination, clearly, indicates that most of the work has been done only on the seeds of dominant and economically important agricultural crops like rice, barley, maize and pea and very little attention has been paid to the seeds of other crop plants, having food value. But from the ancient time as the forests are naturally growing and require far years to achieve yield, therefore, physiological studies of seed germination is neglected, in case of forest tree seeds. In present days, this study is needed because the problem of energy crisis is increasing with grown population. For reforestation physiological studies in germination of forest tree seeds is needed, which will help us to understand the physiology of dormancy and also the physiology of germination of some promising forest tree species.

In order to understand the basic problems involved in the study of germination in general and forest tree seeds (Some of the promising forest tree species); germination in particular, a brief resume of a current status of literature on germination and forestry is covered in the 2nd Chapter. This Chapter mainly deals with the literature on problems and perspectives of forestry. It describes the importance of

forest in the human life, distribution of forest flora in Maharashtra and India. Current knowledge of the forestry, of some promising trees has also been documented. Main stress has been given on the well known plant Leucaena leucocephala (L) de wit. So called "Soo babul".

The methodology followed has been described in details in the 3rd Chapter, entitled Material and Methods. For the study of germination, some of the most promising forest trees like Teak, Terminalia, Casuarina, Silver oak and Leucaena were selected. In the present investigation, we selected most promising and multipurpose tree "Soo babul" i.e. Leucaena leucocephala (L) de.wit. for the present work. Here an attempt has been made to study viability and dormancy of different varieties of Leucaena. For the study of germination different pre sowing soaking treatments to the seeds were attempted. Also post treatments of some salts, growth promoting substances and polyethylene glycol are tried. From the preliminary studies it was found that except Leucaena other plant species showed considerable dormancy. Hence the germination of pretreated seeds in both field and Laboratory conditions has been attempted. Even further growth of seedlings in laboratory conditions have been assessed. Germination percentage, growth and some biochemical changes with respect to carbohydrates, Proline, amino acids, composition and sugar composition under treatments have been investigated. All this has been described and discussed

in the 4th Chapter of the Thesis entitled "Results and Discussion". All the important findings along with the problems and perspectives in forestry have been summarised the last Chapter of the Thesis (5th Chapter). Current literature and books, reviews, monographs have been listed properly in "Bibliography" at the end.

The present study was persued to have a preliminary idea of physiological processes during germination in the forest trees under various stress conditions. It must be admitted here that many more such attempts are needed to solve nursery problems in respect of germination of forest tree seeds; which will help in breaking dormancy of many forest tree seeds and accelerating growth and development of seedlings. Ultimately this will help in increasing forest area which is required for environmental balance in maintaining different cycles essential for live stock on this earth.

...