



ORIGINAL ARTICLE

Impact of Sunlight and Soil pH on the Seed Germination of Different Plants in Bundelkhand Region

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ABSTRACT

Seed germination of a plant species is influenced profoundly by environmental factors. The trees grow in a mixed dry deciduous forest in Bundelkhand region. The study of sun light and soil pH on seed germination of Albizzia lebbek and Dalbergia sissoo were studied. The low wave length of blue light as found suitable for the maximum germination A. lebbeck and D. sissoo. In these two species the diurnal alternating temp. as found good germination. The seed germination of all the two species in favoured by slightly acidic pH. Maximum germination percentage is found in A. lebbek

Key words: A. lebbek, D. sissoo, Soil pH, Sun Light

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INTRODUCTION

Forests have contributed to the prosperity of our nation as a whole and they are the sources of human history Godly gifts and are faithful friends of mankind. At present there are about a quarter of million plant species in the world. Germination of seed is an important phase in the ecological life history of any species in fact it determiners the potential of that species to spread in giving favourable conditions for establishment germination is the outcome of the interaction of various environmental factors with the intrinsic capabilities of the seed. In this context study was undertaken to know the effect of light and pH on seed germination in the *A. lebbek* and *D. sissoo*.

MATERIAL AND METHODS

The seeds of *Albizzia lebbek* (Siris) were collected in the month of February and *D. sissoo* (Shisham) in the month of March 1998, all from the neighboring forests. The seeds were stored in stoppered glass bottles before starting germination experiments viability of the seeds was tested by the T.T.C. reaction (Mishra, 1968). The seeds were soaked in distilled water for 24 hours and fifty of them were thereafter kept between two moist filter paper in each petri-plates some of the petri-plates were transferred to a light proof wooden box for dark treatment and the rest were placed in a chamber lighted with fluorescent tubes. The desired colour of light i.e. blue and red was obtained by the use of cellophane paper of respective colour. Buffer soln. for seven diff. pH values was prepared. Germination was tried in each of the seven pH. soln. with three replicates for each buffer. All the experiments were conducted at room temperature.

RESULTS AND DISCUSSION

The germination is significantly affected by light and pH in all the two species. The influence of light on germination has been termed photoblastism by Evenari, 1956. Negbi and Kaller observed that germination of seeds is generally promoted by one region of the spectrum and inhibited by the other region. In *A. lebbek* the germination is accelerated by high energy region of the visible spectrum (blue light).

The pH of medium is an important edaphic factor for the germination of seeds. It is found that different soil pH has varied effect on the germination of the plant. The range of 5.5 to 7.0 pH is suitable for germination in all the two species under study. In natural condition in forest, from where seeds were collected for study, soil pH ranges from 6.6 to 6.8 which are found suitable for better germination of the seeds of the species.

Seed germination of all the two species is significantly affected by light and pH. The data in Table 1 indicated that maximum percentage of germination for *A. lebbek* and *D. sissoo* was 79 + 4.0 and 94 + 3.1 respectively in blue light.

The seed germination of all two species was favored by slightly acidic pH. Maximum germination percentage in *A. lebbek* was recorded 89% at pH 6.4 respectively. In *D. sissoo* maximum germination percentage is recorded 92% at 7.0 pH. The range of 5.5 to 7.0 pH is suitable for germination in all two species.

Table 1: Germination Percentage in Dark and in Different Light Conditions

Species	Percentage germination			
	Dark	White light	Red light	Blue light
<i>Albizzia lebbek</i>	54 + 2.5	56 + 5.6	74 + 7.5	79 + 4.0
<i>Dalbergia sissoo</i>	74 + 4.4	64 + 8.9	93 + 2.1	94 + 3.1

Table 2: Germination Percentage in Different pH. Values

Species	pH Value						
	2.0	5.2	6.4	7.0	7.5	8.7	9.5
<i>Albizzia lebbek</i>	X	72 + 3.5	89 + 5.4	85 + 3.1	75 + 3.1	73 + 1.3	74 + 2.5
<i>Dalbergia sissoo</i>	X	86 + 3.1	89 + 3.0	92 + 3.0	91 + 1.3	70 + 5.1	64 + 2.1

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