International Journal of Current Advanced Research
ISSN: O: 2319-6505, ISSN: P: 2319 – 6475, Impact Factor: SJIF: 5.438
Available Online at www.journalijcar.org
Volume 6; Issue 1; January 2017; Page No. 1690-1691

Review Article

A REVIEW ARTICLE - BAMBOO SEED VIABILITY

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A R T I C L E I N F O

Article History:

Received 15th October, 2016
Received in revised form 7thNovember, 2016
Accepted 14th December, 2016
Published online 28th January, 2017

Key words:

Controlled Conditions, Natural Conditions, Seeds, Seed Viability

A B S T R A C T

Seeds of bamboos are viable for very short time period. Seed viability is the capability of a seed to germinate. Bamboo seeds are known to lose viability relatively fast. Viability decreases with ageing and seeds completely lose viability under natural conditions in few months. Keeping the seeds under controlled conditions help maintain viability for longer duration which can be further exploited for various uses. Seed viability of bamboos for shorter time period poses a major problem for scientist.

INTRODUCTION

Bamboos is a large woody grasses that belonging to the family *Poaceae.* This ancient woody grass widely found in tropical, subtropical and mild temperate zones of the world**.** The importance of bamboo as an ecofriendly raw material, capable of meeting multifarious needs of the people at large is gaining global acceptance. From a " poor's man timber", bamboo has now been elevated to the status of ' the timber of 21st century'. India has the second largest bamboo reserves in the world after China[1]. Bamboos provide us the three basic necessities of life *i.e* food, shelter and clothing. They are put to more than 1500 different uses. Bamboo can be extremely important in providing vegetative cover to deforested areas. It provides leafy mulch to the soil surface. The most peculiar feature of this plant is its flowering which is cyclic phenomenon. This genetically controlled flowering is so profuse that the whole plant is transformed into a giant inflorescence[2]. Bamboos are naturally propagating both sexually and asexually from seeds and rhizomes. Seeds produced are viable only for 2-3 months which is very short time period and vegetative propagation in bamboos is practiced through offsets but these rhizomes are cumbersome. Micropropagation is an expensive technology and therefore seed serve as the best source of propagation on large scale. Seeds serve as best material for large scale plantation, germplasm conservation and improvement of genotype. It is essential for researchers to study metabolism at various stages of storage, devise storage methods to increase their shelf life and to find some methods to increase their viability and vigour during ageing. the viability of seed could be retained for longer period of time by preserving its membrane degradation[3].

Seed Germination

Seeds can be used for seedling production only for short duration of maximum six months. There are bamboos which have not produced seeds yet. So, production of planting stock in bamboo is difficult due to absence of regular seeding and short viability of seeds. Seeds of bamboos cannot be obtained every year and after seeding the bamboos die. High percentage of germination (80-100) is obtained, if seeds are sown soon after collection under shade. Germination period is four to twenty days in orthodox seeds, while for recalcitrant seeds of Melocanna and Ochlandra it may be less. Germination in fresh seeds of bamboo is high like 90-95 per cent in *B. bambos*, upto 75 per cent in *D. strictus*, 55- 90 per cent in *Ochlandra spp.* Use of growth regulators like IBA and GA had significant influence on germination 3 and vigour of seeds of *D. hamiltonii*[4] while IAA, IBA and NAAon *D.strictus*[5].

Seed storage

Bamboo seeds lose their viability within short period of time and the viability of bamboo seeds depend on the storage condition and time[6]. The deterioration of seed quality depends on two environmental factors – relative humidity that regulates seed moisture content and temperature and both influence by affecting the metabolic rate of seeds.Drying the seed using desiccators was better than sun drying; at 10 per cent moisture content seeds, could be stored for longer time and at low temperature of 8º-12ºC over a period of one year . It was reported rapid loss in viability of seeds stored under ambient conditions, while for the seeds stored at low temperature (-3º to 0ºC) and over anhydrous calcium chloride, deterioration was gradual and were viable till 413 days[7].

Seeds stored in sealed polythene bags and at -70ºC had 65 per cent germination after one year[8]. It was reported that seeds of *D. brandisii* can be stored up to 30 months without any reduction in viability at 4°C, 45 per cent relative humidity and 8 per cent moisture content in sealed double polythene bags, placed in airtight plastic containers .

CONCLUSION

Bamboo seed viability is a major problem with seed researchers. Also scientific knowledge through research programmes on the lifecycle, seed morphology, germination and longevity of bamboo seeds for germplasm conservation is important for their proper utilization at the time of their availability after gregarious flowering.

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