

Propagation of *Meizotropis buteiformis* Voigt

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Abstract

The seeds of *Meizotropis buteiformis* were treated with different scarification treatments viz. - Mechanical treatment, acid treatment, hot water treatment, presoaking and treatment of alkali (NaOH and KOH), thiourea and Indole Acetic Acid (IAA). The stem cuttings were also treated with Indole Acetic Acid (IAA), Indole Butyric Acid (IBA) and Gibberellic Acid (GA). It was observed that the highest percentage of seed germination was recorded in presoaking treatment for 6 hrs, hot water treatment (50°C for 15 mins) followed by Conc. H₂SO₄ (4 min), IAA for 10 mins and thiourea for 10 minutes. The stem cuttings showed highest percentage of sprouting in the treatment of Indole Acetic Acid (IAA) at 200 ppm for four hours.

Keywords: *Meizotropis buteiformis*, Propagation

Introduction

Meizotropis buteiformis Voigt. Synonym *Butea minor* Baker; *Butea buteiformis* (Voigt) Grierson and D.G. Long; *Plaso minor* belongs to family Fabaceae. It is found in Assam, Arunachal Pradesh, Bihar, Jammu and Kashmir, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Uttar Pradesh and West Bengal states of our country. It is erect shrub with tendril like tips, leaves tri-foliolate, elliptic-ovate, flowers orange red, terminal, pods flattened, silky, tomentose, seeds 1.3-2.4 cm, dark brown in colour [6]. It is highly medicinal plant, its leaf extract, bark extract and seed powder are used in medicine. It is extensively used by tribal population as a remedy of cough, stomatitis, asthma, syphilitic diseases, chronic laryngitis, jaundice and arthritis. Flowers are used as antibacterial and antihelminthic [1].

Meizotropis buteiformis Voigt is a highly medicinal plant which is exhaustively utilized by the forest dwellers. However, it is not substituted by cultivation. On this account, the population of this important medicinal tree is depleting at a faster rate. This is an alarming situation which needs urgent attention by the communities. Taking this fact into consideration, efforts have been taken by us in our institute to propagate it by seeds and stem cuttings. The seeds sown in nursery exhibit only 40-50% seed germination. Present paper deals with some pre-sowing treatments on germination of *Meizotropis buteiformis* Voigt.

Materials and Methods

For present investigation, seeds were collected from, "India Peace Memorial," Imphal, Manipur (Latitude N 24° 42' 601", Longitude E 093° 48' 775", Altitude 2474 feet)" on 4th October 2009 (field no. 006620 KNG and ASD).

The seeds were treated with different mechanical as well as chemical methods and growth hormones [2] and [4].

Presoaking treatment: Seeds were soaked in the tap water for 2hr-10hr.

Mechanical treatment: The seeds were subjected to slight scraping with the help of sharp blade.

Hot water treatment: Seeds were immersed in hot water (50°C) for 5-30 min.

Acid treatment: Seeds were treated with Conc. H₂SO₄ for 2-8mins and washed with running water, similarly treated with conc. HCl for 2-8 mins. and HNO₃ for 5-10 mins.

Alkali treatment: Seeds were treated with NaOH and KOH for 5-30 min., washed with running water.

Treatments of growth regulators: Seeds were treated with different growth hormones such as Indole acetic acid (IAA) for 5-15 min. [3].

Thiourea treatment: Seeds were treated with thiourea for 5-15 mins.

Effect of growth regulators on stem cuttings: Stem cuttings are treated with different hormones such as IAA, IBA and GA for 6hrs. 200 ppm [5].

All treated seeds were sown. Seeds sown in soil at a depth of 2 cm were considered as control. Seed germination percentage and sprouting of stem cutting were recorded after 15days. From each category 100 seeds in the five lots of 20 seeds each were used for the study on percent of seed germination.

Results and Discussion

It is revealed from the data presented in table 1 that, the presoaking treatment for 6 hour showed highest percentage of seed germination, followed by hot water at (50°C) for 15 minutes, sulphuric acid treatment for 4 minutes and IAA (Indole

acetic acid) treatment for 10 minutes (Fig. 1, 2, 3, 4 and 5). The data presented in table 2 indicate that, the highest

sprouting of stem cutting was recorded in IAA 6 hrs. at 200 ppm(fig.3).

Table 1. Effects of different treatments on seed germination

Treatments	% germination.
	94.0
Presoaking(2-10hr.)	98.0
	94.0
	89.0
Hot water (50°C 5-15min.)	91.0
	85.0
	85.0
Conc.H ₂ SO ₄ (2-8min.)	90.0
	87.2
	71.0
	64.3
Conc. HCl (2-8min.)	75.2
	87.6
	64.0
IAA (5-15min.) 25ppm.	70.0
	90.0
	60.0
	60.0
Conc.HNO ₃ (5-15min.)	70.0
	50.0
	71.0
KOH (5-30min.) 0.1N	85.2
	56.8
NaOH (5-30min.) 0.1N	65.0
	72.2
	52.0
Thiourea (5-15min.) 1%	50.0
	60.0
	-
Control	40.0

Table 2. Effect of growth hormones on stem cutting

Treatment	Length of stem (cm)
IAA(200ppm)	30
IBA(200ppm)	25
GA(200ppm)	18
Control	35



Fig.1-Seed germination



Fig.2-Plant developed after seed scraping



Fig.3- Propagation by stem cutting



Fig.4- Plant developed after acid treatment



Fig. 5- Plant developed after presoaking

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