6.34/T_6-193

Germination Studies in Millettia ovalifolia Kurz.

R.L. Sondarva[#], J.B. Bhusara, R.P. Gunaga[*], H.T. Hegde, A.A. Mehta and S.A. Huse
College of Forestry, Navsari Agricultural University, Navsari - 396 450 Gujarat, India
[#]Email: rameshsondarva92@gmail.com; [*]Corresponding author: rpgunaga@nau.in
Keywords: *Millettia ovalifolia, germination, pre sowing treatment, media*

1. Introduction

Millettia ovalifolia Kurz. (Moulmein Rosewood; Family-Fabaceae) is a legume tree species native of the tropics and subtropics of Asia and Africa. This species is relatively rare than Karanj and is very similar looking in its morphology. Species is considered as one of the avenue trees and it has medicinal properties. This species is practiced in traditional medicine and used in wound healing treatment, sores, skin diseases, snake bite, muscle aches, pains, *etc*. There are few trees in Waghai botanical garden maintained by Gujarat Forest Department, Dangs, South Gujarat. The regeneration information of this species is scanty. Therefore, this study was undertaken with objective to know the influence of pre-sowing treatments and potting media on seed germination.

2. Material and methods

The present study was carried out in the forest nursery of FPU plot, College of Forestry, NAU, Navsari, Gujarat, India. The pre-sowing treatments *viz.*, T_1: Control (No treatment), T_2: Soaking seeds in normal water for 24 hours, T_3: Soaking seeds in normal water for 48 hours, T_4: Soaking seeds in cowdung slurry for 24 hours, T_5: Soaking seeds in cowdung slurry for 48 hours, T_6: Soaking seeds warm water for 1 hr were exposed to freshly collected seedlots. Further, all these six treatments were sown in two different germination media *viz.*, M_1: Sand and M_2: Soil. Germination count and initial seedling growth were recorded.

3. Results and discussion

Seeds collected from single tree of *Millettia ovalifolia* Kurz. exposed to different pre-sowing treatments showed that both germination media and pre-sowing treatments influences the seed germination and initial seedling growth. Among two germination media, maximum seed germination was recorded in Sand medium (M_1) than Soil medium (M_2) in all the pre-treatments.

Table 1. Influence of germination media and pre-sowing treatments on seed germination and seedling vigour of *M. ovalifolia*

Pre-sowing treatments	Germination (%)			Seedling Height (cm)			Basal Diameter (mm)		
	M_1	M_2	Mean	M_1	M_2	Mean	M_1	M_2	Mean
T_1	64.0	46.0	55.00	7.91	7.21	7.56	1.42	1.31	1.37
T_2	70.0	34.0	52.00	7.53	6.49	7.01	1.41	1.38	1.39
T_3	50.0	30.0	40.00	7.74	6.05	6.90	1.62	1.14	1.38
T_4	48.0	30.0	39.00	8.45	6.32	7.39	1.39	1.20	1.30
T_5	64.0	22.0	43.00	7.29	7.76	7.53	1.40	1.12	1.26
T_6	16.0	32.0	24.00	7.53	6.04	6.79	1.27	0.97	1.12
Mean	52.00	32.33	42.17	7.74	6.65	7.19	1.42	1.18	1.30

T1: Control (No treatment); T¬2: Soaking seeds in normal water for 24 hours; T¬3: Soaking seeds in normal water for 48 hours; T¬4: Soaking seeds in cow dung slurry for 24 hours; T¬5: Soaking seeds in cow dung slurry for 48 hours; T¬6: Soaking seeds warm water for 1 hr.

Considering pre-treatment (irrespective of germination media), the best seed treatment was T_1 (55%), followed by T_2 (52%) and it was the least in T_6 (24%). By comparing pre-sowing treatment with germination medium, soaking seeds in normal water for 24 hrs resulted in maximum germination in sand medium (T_2M_1=70%), followed by seeds with no treatment sown in sand medium (Control T_1M_1=64%) and soaking seeds in cowdung slurry for 48 hours (T_5M_1=64%) than rest of the treatments. This inference was also noticed in the early growth of 45 days old seedlings in different treatments. Maximum germination obtained in the control could be due to use of fresh seeds, which are collected from standing tree and sown within a week. Further, soaking in water for 24 hrs soften the seeds and helped in early and maximum germination (Gunaga et al., 2011). However, warm water reduces the germination, where it adversely effects the living tissue. Sand medium could provide more aeration that helped the seed to germinate early than soil medium.Study shows that both germination media and pre-sowing treatments influences the seed germination in *Millettia ovalifolia. Further,* soaking seeds in normal water for minimum duration of 24 hrs in sand medium could be used for large scale seedling production of *M. ovalifolia*.

Reference

Gunaga RP, Doddabasav and Vasudeva R 2011. Enhancement of seed germination through proper pre-sowing treatment in *Calophyllum inophyllum*. *Karnataka Journal of Agricultural Sciences* **24**(3): 413-414.