Authors:	KUMAR, SAMEER (/browse?type=author&value=KUMAR%2C+SAMEER)
Advisor:	Siddiqui, M.H. (/browse?type=author&value=Siddiqui%2C+M.H.)
Title:	Evaluation of different provenances of Karanj (Pongamia pinnata) at seedling stage under varied nursery management conditions
Publisher:	Birsa Agricultural University, Kanke, Ranchi, Jharkhand
Language:	en_US
Type:	Thesis
Pages:	86
Agrotags:	null
Keywords:	Evaluation of different provenances of Karanj (Pongamia pinnata) at seedling stage under varied nursery management conditions
Abstract:	Pongamia pinnata, a multipurpose tree species raised on boundaries of agricultural field, wastelands/fallow lands and on degraded lands can be used as an alternative substitutes for bio fuel and for many other uses viz. pesticide, insecticide, medicine, for soap production, agricultural implements, tools handle etc. Karanj oil is used as lubricant, varnish, water paint binder for cure of skin diseases. Multiple use of Pongamia becomes helpful to increase rural employment, self-sustainability and to alleviate poverty for rural population. Being indigenous to Indian sub-continent, the climatic conditions prevailing in Jharkhand have much potential for its large scale plantation. However, no specific provenance or seeds source has been recommended for this region with respect to ease of establishment, good growth and more seed production. Therefore, a trial study for the evaluation of twelve provenances of Pongamia pinnata been undertaken. The twelve provenances included were Idukki, Kerala (P1), Waynad, Kerala (P2), Thrissur, Kerala (P3), Palakkad, Kerala (P4), Coimbatore, TN (P5), Krishnagiri, TN (P6), Madurai, Kerala (P7), Mettupalayam, TN (P8), Gadag, Karnataka (P9), Tumkur, Karnataka (P10), Patna, Bihar (P11), and Ranchi, Jharkhand (P12) The experiment was conducted in completely randomized design in polypots having three replications. Data

were collected on seed characteristics (seed length, seed width, individual seed weight). Seeds were sown in nursery to study seed viability, germination percentage, and germinative energy percent. The different growth parameters (seedling height, collar diameter) were measured at 3 and 6 months age. At end of the experiment (after 6 month of seedling growth) root length, root-shoot ratio, dry biomass, sturdiness and Dickson quality index were calculated. The study on seed characteristic of twelve provenance have indicated maximum seed length for Tumkur, Karnataka provenance (P10), seed width of Thrissur, Kerala provenance (P3), and individual seed weight of Pallakad provenance (P4). Maximum seed viability, germination percentage and germinative energy were obtained for Ranchi, Jharkhand provenance (P12). The grading treatment showed maximum height for Gadag, Karnataka (P9) at 3 months age, whereas for Madurai, Tamilnadu (P7) provenance it was highest at 6month. On this basis, seedlings of twelve provenances were grouped into three – low height group (9.46 cm to 10.80 cm), medium height group (12.19 cm to 13.80 cm) and large height group (14.29 cm to 15.68 cm). In case of under lining treatment the Coimbatore, Tamilnadu (P5) provenance showed maximum seedling height at 3 month age, while in Thrissure, Kerala (P3) provenance maximum height was found at 6 month age. For various duration of sun light treatments more seedling height at 3 month age was for 1/4th day period of light in P12, whereas at 6 month age it was obtained for P5 (1/2 day period of light). On the other hand out of three watering schedule treatments maximum height at 3 and 6 months was observed for after two days watering treatment in case of Madurai, Tamilnadu (P7). Incase of 6 month old seedling, maximum seedling height for after two daily watering was notice for (P7) source. The seedling collar diameter for grading and underlining treatment at 6-month age was maximum in Mettupalayam, Tamilnadu (P8) and Maddurai, Tamilnadu (P7) source, respectively. In case of sun light and watering schedule treatment the seedling collar diameter after 3-month were maximum in Gadag, Karnataka (P9) and Thrissure, Kerala(P3),respectively, whereas after 6 month growth it was highest in Coimbatore, Tamilnadu, (P5) and Ranchi, Jharkhand (P12),respectively. Longer root length for grading treatment was found in Gadag, Karnataka (P9) provenance and root-shoot ratio approaching to 1.0 was obtained in case of P4, P7 and P10. Maximum root length was recorded for P10 source for under lining treatment. Root length of sun light and watering schedule treatment were maximum in Mettupalayam, Tamilnadu (P8) and Maddurai, Tamilnadu (P7), respectively. Balanced seedling in case of Tumkur, Karnataka (P10), Ranchi, Jharkhand (P12) and Patna, Bihar (P11) provenances was noticed under daily watering schedule. Maximum sturdiness for grading treatment was found in Gadag, Karnataka (P9) provenance, while minimum sturdiness was found in Patna, Bihar (P11) and highest Dickson quality Index were calculated for two provenances of Tamilnadu, i.e. for P5 and P6. For under lining minimum sturdiness is recorded for P10 and maximum Dickson Quality Index for P12 source. Incase of full day light treatment, Idukki, Kerala (P1) provenance showed less sturdiness. Dickson Quality Index for full day light treatment was found maximum for P5 source, whereas for 1/4th day period of light, it was for P4 and P12. In case of ½ day period of light, Dickson Quality Index of Gadag, Karnataka (P9) was found maximum. Maximum dry biomass for grading treatment was observed for two provenances i.e. Coimbatore (P5) and Mettupalayam (P8) and for under lining treatment it was found for P8 source. In case of full day light treatment, maximum dry biomass was found in P4 source. On the other hand maximum dry biomass per seedling was obtained for local provenance P12 under daily Watering. No significant correlation was obtained between none of the seed parameters and seedling growth parameters. The seed characteristics have indicated superiority of Tumkur, Karnataka (P10) provenance over all the other provenances. However, the performance of seed germination and seedling growth of Ranchi, Jharkhand (P12) provenance has indicated it suitability over other provenances.

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Subject:	Forest Business Management
Theme:	Evaluation of different provenances of Karanj (Pongamia pinnata) at seedling stage under varied nursery management conditions

These Type:	M.Sc
Issue Date:	2007
Appears in Collections:	Thesis (/handle/1/93550)

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