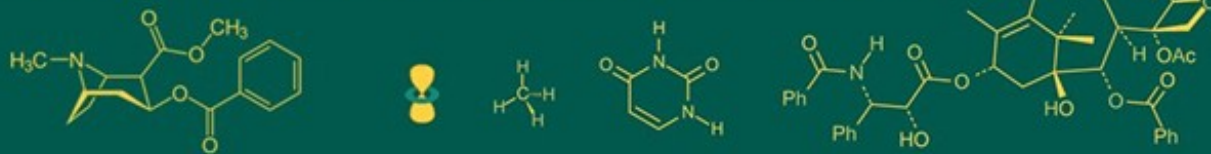


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Optimization of IBA concentration and media combination for vegetative propagation of crape myrtle [*Lagerstroemia indica* (L.) PERS.] through stem cutting

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ABSTRACT

An experiment on "Optimization of IBA concentration and media combination for vegetative propagation of crape myrtle [*Lagerstroemia indica* (L.) PERS.] through stem cutting was conducted during the 2025-26 in kharif season at Hi-tech greenhouse, Hi-tech Horticulture Park, College of Horticulture, Junagadh Agricultural University, Junagadh (Gujarat). The experiment was laid out in Completely Randomized Block Design (Factorial) with three repetition and twelve treatment combinations comprising of three different levels of IBA (P_1 - 3000 ppm, P_2 - 4000 ppm and P_3 - 5000 ppm and four different media combinations [M_1 : Soil + FYM (1:1), M_2 : Soil + Sand + FYM (1:1:1), M_3 : Soil + Vermicompost + FYM (1:1:1), M_4 Soil + Sand + Vermicompost + FYM (1:1:1:1). Rooting and growth of crape myrtle cuttings were influenced by different levels of IBA. The application of IBA at 5000 ppm (P_3) recorded the minimum number of days to sprouting and 50 per cent sprouting, as well as the maximum sprouting percentage at 15, 30 and 45 DAP. However, the application of IBA at 4000 ppm (P_2) resulted in the highest number of roots per cutting, the longest root length and survival percentage at 120 DAP. Among the different media combinations the Soil + Sand + Vermicompost + FYM (M_4) recorded the minimum number of days to initial sprouting, 50% sprouting, sprouting percentages, number of sprouts per cutting at 15, 30 and 45 DAP, highest number of roots per cutting, length of longest root and survival percentage at 120 DAP.

Keywords: Crape myrtle, IBA, Growing media

Introduction

Floriculture has emerged as a significant agribusiness sector, making substantial contributions to the Indian economy through employment generation, income enhancement, foreign exchange earnings and the empowerment of rural and urban communities. Floriculture encompasses a wide range of activities, including the cultivation and production of fresh flowers (cut and loose), cut greens, fillers and foliage, potted flowering plants, dried flowers, bulbs and tubers, hybrid seed and nursery plants.

Flowering ornamental plants are primarily cultivated for their aesthetic value and are widely used to enhance the visual appeal of gardens, landscapes, residential spaces, and public areas. In addition to their ornamental importance, these plants contribute to improving environmental quality by enhancing the surrounding ambience and helping to purify the air.

Lagerstroemia Indica (L.) PERS. is known as crape myrtle, a well-known ornamental tree species of Lythraceae family. It is naturally grown in East Asia and Subcontinent. *Lagerstroemia Indica* grows in full sun or under canopy. Leaves are small and oval in shape. Flowers with crimped petals are pink, white or purple in colour. *Lagerstroemia* have flowers for 1-2 months during summer and are best suited for border planting around buildings or as mass ground cover planting in gardens and parks. They can also be planted along with the side of the pathways and lawns increasing their beauty and elegance. Several cultivars of crape myrtles are now available in horticultural trade. *Lagerstroemia* are suitable for urban landscaping as they successfully grown in urban areas where air pollution, poor drainage, poor soil and drought are common (Roy et al., 2015) [1]

Plant propagation is an important aspect of agriculture, particularly in horticulture. Vegetative propagation is the form by which desired individual characteristics are maintained, resulting in a plant that is genetically identical to the original donor plant, thus becoming the preferred method of propagation. The propagation by cuttings favours the quick and massive production of plantlets having tremendous vigor because the plants are on their own roots, making them more resistant to adverse conditions. Methods of vegetative propagation like cutting have proved to be a handy device for the horticulturist and nurserymen for the multiplication of true-to-type plant.

However, due to low rate of rooting in cuttings, the vegetative propagation has its own limitations. The process of regeneration is largely controlled by internal and external factors. Cuttings can take root when a number of co-factors are present in addition to auxin. Auxins are essential for cell division, cell elongation, root initiation and overall root system development. Synthetic auxins such as IBA have been most effectively used in propagation research because of their stability, low toxicity and high efficacy in promoting adventitious root formation (Okoro *et al.*, 1976) [2].

The process of root formation at the base of a cutting may be divided into three stages viz., root initiation, root elongation and root growth and development (Hartmann *et al.*, 2002). Success of vegetative propagation mostly depends on the ability of plant to form roots when placed in suitable media and favorable environment conditions for rooting. The concentration of rooting hormone in stem cutting propagation varies according to species, cutting type, season, growth conditions and cost-effectiveness of hormone components. Selecting the optimal concentration of the rooting hormone is crucial for successful plant production. (Kaushik *et al.*, 2020) [3].

Plant growth regulators can accelerate the development and increase the efficiency of adventitious rooting in ornamental plants. Root initiation with the use of growth regulators occupies a significant position in the field of propagation (Mukherjee *et al.*, 1976) [4]. One of the many approaches has been the application of plant growth regulating chemicals to bring about a change in the growth of roots and shoots of some horticultural crops of ornamental importance. When propagation through stem cutting becomes very difficult, treatments with growth regulators are applied in optimum concentration to promote rooting in stem cutting. Activity of growth regulators depends upon the amount of hormone applied and a particular concentration of growth regulator may be more effective for initiation of root in stem cutting. Thus, optimum concentration of growth regulator needs to be determined for different plant species.

However, the success of rooting in hardwood or semi-hardwood cuttings varies greatly depending on physiological condition of the stock plant, season of collection, type of cutting, hormonal balance and suitability of rooting media. Among these factors, the application of root-promoting growth regulators, particularly Indole-3-butyric acid (IBA), has been widely recognized as a key determinant of successful root induction in difficult-to-root species (Leakey *et al.*, 1994) [5]. IBA stimulates the formation of root primordia by enhancing carbohydrate mobilization, increasing endogenous auxin levels and improving cell differentiation at the basal end of cuttings (Hartmann *et al.*, 2018) [6].

Moreover, the optimum concentration of IBA varies with species, growth stage, type of cutting and environmental factors. For *Lagerstroemia indica*, previous studies indicate that an appropriate concentration of IBA can enhance root induction even in semi-hardwood cuttings that normally root poorly under natural conditions. The rooting ability and success percentage of cuttings depends on many factors. Among them, plant growth regulators play an important role in formation of roots and shoot growth in cuttings. Root commencement with the exogenous application of plant growth regulators occupies a significant role in the field of plant propagation (Mukherjee *et al.*, 1976) [4]. With this, current study was aim to find the effect of IBA on rooting of *Lagerstroemia indica*. Considering these gaps, it becomes necessary to evaluate the combined effect of different rooting media and IBA concentrations specifically for *Lagerstroemia indica* under local Indian conditions. Establishing a standardized propagation protocol will not only enhance rooting efficiency and plant quality but also support large-scale, cost-effective production for ornamental landscaping. The outcomes of such research will be highly beneficial for nursery growers, landscapers and commercial horticulturists seeking reliable and sustainable methods for mass propagation of crape myrtle.

The aim of this study was to investigate the various levels of IBA for vegetative propagation of crape myrtle.

Materials and Methods

The present investigation on Optimization of IBA concentration for vegetative propagation of crape myrtle [*Lagerstroemia indica* (L.) PERS.] through stem cutting was conducted during the year 2025-26 in *kharif* season at Hi-tech greenhouse, Hi-tech Horticulture Park, College of Horticulture, Junagadh Agricultural University, Junagadh (Gujarat). The experiment was laid out in Completely Randomized Design (Factorial) with three repetitions and twelve treatment combinations comprising of three different IBA concentration P₁: 3000 ppm, P₂: 4000 ppm, P₃: 5000 ppm, and four different growing media combination M₁: Soil + FYM (1:1), M₂: Soil + Sand + FYM (1:1:1), M₃: Soil + Vermicompost + FYM (1:1:1), M₄ Soil + Sand + Vermicompost + FYM (1:1:1:1).

Observations of growth and yield parameters were recorded from the five polythene bag plants were selected for each repetition and average was calculated. In order to study the average effect of different treatments over the year was carried out as suggested by Panse and Sukhatme (1967).

Results and Discussion

Among different growth parameters minimum number of days to sprouting was observed with the application of 5000 ppm IBA and media combination M₄- Soil + Sand + Vermicompost + FYM (1:1:1:1). The data presented in Table 1 revealed that days to sprouting of cuttings were affected by different concentration of IBA. The significantly minimum days to sprouting and 50 % sprouting (12.22 days) and (20.18 days) were recorded in 5000 ppm IBA (P₃). It might be due to the application of IBA to cuttings resulted in a reduced number of days to sprouting and it might be due to the effect of auxins optimal concentration. This likely stimulated early callus development and enhanced the differentiation of vascular tissues, thereby promoting faster initiation of sprouting. The early sprouting may be caused by utilization of stored carbohydrates, nitrogen and other elements present in cutting with the help of growth regulators (Chandramouli, 2001) [7]. Similar results are in conformity with Kumari *et al.* (2013) [8] in *Jatropha* cuttings and Malaviya *et al.* (2023) [9] in *dracaena* cuttings.

Whereas, the minimum days to sprouting and 50 % sprouting (11.44 days) and (18.93 days) were recorded with the growing media of soil + sand + vermicompost + FYM (M₄). It might be due to the early sprouting by soil + sand + vermicompost + FYM growing media might be due to the sand provides excellent drainage and aeration, preventing water logging and root rot which are critical during early sprouting (Bhardwaj *et al.*, 2020) [10]. Vermicompost is rich in plant growth-promoting substances like auxins, cytokinins and gibberellins as well as macronutrients and micronutrients. These bioactive compounds stimulate cell division and elongation leading to quicker sprouting. (Arancon *et al.*, 2004) [11]. Similar results were also recorded by Kumar *et al.* (2016) [12] in marigold.

The data presented in Table 2 revealed that different level of IBA and growing media showed significant responses with regards Sprouting percentage. The sprouting percentages were significantly influenced by different concentration of IBA. The higher sprouting percentage 37.78 %, 64.44 % and 71.11 % at 15, 30 and 45 DAP was observed with 5000 ppm IBA (P₃) respectively. It might be due to the promotive effect of Indole Butyric Acid (IBA) on physiological processes such as cell division and elongation, which enhances bud activation and early sprout emergence. The higher concentration of Indole Butyric Acid (IBA), may have also improved the mobilization of stored food reserves and increased water and nutrient uptake by enhancing cell membrane permeability, thereby accelerating sprouting. These results are in agreement with the findings of Abbas *et al.* (2015) [13] in rose and Savaliya *et al.* (2021) [14] in hibiscus. Whereas, the significantly higher sprouting percentages (43.70 %, 69.63 % and 77.04 %) were observed in the growing medium comprising Soil + Sand + Vermicompost + FYM (M₄) at 15, 30 and 45 days after planting, respectively. The improved sprouting and rooting

performance of plant cuttings in the Soil + Sand + Vermicompost + FYM growing medium might be attributed to the combined beneficial effects of its components. Sand enhances drainage, aeration and structural support, while vermicompost improves nutrient availability, microbial activity and the supply of plant growth-promoting substances. FYM contributes to improved soil structure, increases organic matter content, enhances moisture retention and provides a continuous supply of essential nutrients, thereby creating a favourable environment for root initiation and development. These combined effects may have promoted better sprouting, rooting and overall growth of crape myrtle cuttings. Similar results were also reported by *Jaleta et al.* (2019) [15] in grape cuttings and *Minj et al.* (2023) [16] in bougainvillea.

The data presented in Table 3 interaction effect of different levels of Indole Butyric Acid (IBA) and growing media was found to be significant at 45 DAP (Table 4.3.1). Whereas, it was found non-significant at 15 and 30 DAP. Among the different combinations of different levels of IBA treatment and different growing media combination of soil + sand + vermicompost + FYM along with 4000 ppm IBA (P_2M_4) was recorded as having a significantly higher sprouting percentage (84.44 %) at 45 DAP. The minimum sprouting percentage (53.33 %) was found in the treatment combination of soil + FYM with 3000 ppm IBA (P_1M_1) at 45 DAP. It might be due to the inclusion of sand improved aeration and drainage, while vermicompost and FYM supplied essential nutrients, beneficial microorganisms and organic matter that enhanced moisture retention and created a favourable environment for root initiation and bud sprouting. The application of 4000 ppm IBA stimulated cell division, cell elongation and the formation of adventitious roots, resulting in better water and nutrient uptake, which ultimately promoted earlier and higher sprouting.

The data presented in Table 4 indicated that the different concentration of IBA showed significantly maximum number of roots per cutting (8.67) in 4000 ppm IBA (P_2) at 120 DAP. However, minimum number of roots per cutting (6.83 days) was recorded in 3000 ppm IBA (P_1). It might be due to the stimulatory role of Indole Butyric Acid (IBA) in promoting adventitious root formation by enhancing cell division, differentiation and root primordia development. The application of IBA at 4000 ppm likely provided an optimal concentration that activated rooting zones, increased auxins accumulation at the basal end of the cuttings, and up regulated key enzymes such as peroxidase and IAA-oxidase, which are essential for root initiation. IBA also facilitates the mobilization of carbohydrates and other metabolic substrates towards the rooting site, thereby supporting the physiological and biochemical processes necessary for root emergence.

Whereas, the growing media significantly influenced on number of roots per cutting at different interval of observation. The significantly maximum number of roots per cutting was recorded in growing media of soil + sand + vermicompost + FYM (M_4) at 120 DAP (9.33). However, minimum number of roots per cutting were found in growing media of soil + FYM (M_1) at 120 DAP (6.78).

The significantly higher number of roots per cutting observed in the growing media comprising soil + sand + vermicompost + FYM (M_4) may be attributed to the synergistic effect of the media components in providing an ideal rooting environment. Sand improves aeration, porosity and drainage, ensuring adequate oxygen supply to the developing roots and preventing water logging, which is essential for root initiation and elongation. Soil provides physical anchorage and serves as a reservoir of moisture and mineral nutrients. Farmyard manure (FYM) enhances soil structure, increases moisture retention and promotes the proliferation of beneficial microorganisms that facilitate nutrient mineralization. Vermicompost supplies readily available macro- and micronutrients, humic substances, enzymes and plant growth-promoting substances such as auxins- and cytokinins-like compounds, which stimulate root primordia formation, cell division and root elongation. The combined effect of improved aeration, balanced moisture availability, enhanced nutrient supply and increased microbial activity created a favourable rhizosphere for root development, resulting in the maximum number of roots per cutting. Conversely, the lower number of roots recorded in soil + FYM (M_1)

may be due to reduced porosity and aeration, leading to limited oxygen availability for root initiation and subsequent root development. Similar findings are also observed by *Rajkumar et al.* (2017) [17], *Kumar et al.* (2021) [18] in pomegranate, *Busa et al.* (2025) [19] in adenium, *Sodi et al.* (2024) [20] in jasmine, *Padhi et al.* (2024) [21] and *Kala et al.* (2020) [22] in chrysanthemum.

The different concentration of IBA was significantly influenced on length of root. The data indicated in Table 5 that the significantly maximum length of longest root (23.78 cm) was recorded in 4000 ppm IBA (P_2) at 120 DAP. It was statistically at par with 5000 ppm IBA (P_3). However, minimum length of root (21.27 cm) was found in at 3000 ppm IBA (P_1) at 120 DAP. The increased root length observed in cuttings treated with IBA might be due to the accumulation of metabolites at the site of application, which promotes cell expansion, enhanced carbohydrate hydrolysis, protein synthesis and active cell division under the influence of auxins. Additionally, this response could be linked to the key role of auxins in promoting cell elongation during root development.

Whereas, the Among the different growing media, the significantly maximum length of root (25.82 cm) was recorded in growing media of soil + sand + vermicompost + FYM (M_4) at 120 DAP. However, minimum length of root (19.78 cm) found in growing media of soil + FYM (M_1) at 120 DAP. The longest root length was found in growing media of soil + sand + vermicompost + FYM might be due to the mixture is light and friable, allowing roots to mechanically penetrate substrate more easily, promoting deeper and longer root systems. Similar results were recorded by *Ashok et al.*, (2021) [23] in cordy line. *Phuyal et al.* (2018) [24] in prickly ash and *Muraleedharan et al.* (2020) [25] in chrysanthemum. *Busa et al.* (2025) [19] in adenium, *Sodi et al.* (2024) [20] in jasmine, *Padhi et al.* (2024) [21] and *Kala et al.* (2020) [22] in chrysanthemum.

The data indicated in Table 6 that the different concentration of IBA showed significant effect on survival percentage of crape myrtle cuttings. The significantly maximum survival percentage (67.78 %) was recorded with 4000 ppm IBA (P_2) at 120 DAP. It was statistically at par with 5000 ppm IBA (P_3). However, minimum survival percentage (56.67 %) was found in at 3000 ppm IBA (P_1) at 120 DAP. It might be due to the role of Indole Butyric Acid (IBA) in enhancing adventitious root formation, which improves establishment and physiological stability of the cuttings. At the optimal concentration of ppm, IBA promotes cell division and differentiation, leading to quicker and more robust root development that facilitates greater water and nutrient uptake (*Hartmann et al.*, 2011) [26]. This improved rooting likely increases plant survival under field or nursery conditions. IBA also helps reduce transplant shock and encourages a well-organized root system, supporting overall vigour. In contrast, the absence of exogenous auxins in the treatment of (3000 ppm IBA) may result in delayed or weaker root growth, making cuttings more susceptible to moisture stress and mortality. These results are in conformity with the findings of *Ashok and Ravivarman* in crape myrtle, *Bharmal et al.* (2005) [27] in chrysanthemum, *Abbas et al.* (2015) [13] in rose, *Netam et al.* (2018) [28] in jasmine, *Jamal et al.* (2021) in *Gangani et al.* (2023) [29] in ZZ plant.

Among the different growing media, the significantly maximum survival percentage (73.33 %) was recorded in growing media of soil + sand + vermicompost + FYM (M_4) at 120 DAP. However, the minimum survival percentage (51.11%) found in growing media of soil + FYM (M_1) at 120 DAP. The significantly maximum survival percentage was obtained in growing media of soil + sand + vermicompost + FYM might be due to vermicompost contains hormones (auxins, humic acids, cytokinins) that stimulate root and shoot growth, boosting cutting establishment. Cocopeat and sand also helps in growth of root and shoot that increase the survival of cuttings. Similar results were recorded by *Chaudhari et al.* (2018) [30] in poinsettia and *Katoch et al.* (2024) [31] in dracaena and pedilanthus.

The data indicated in table 7 that the interaction effect of different levels of Indole Butyric Acid (IBA) and growing media was found to be significant in term of survival percentage. Among the different

combinations of different levels of IBA treatment and different growing media combination of soil + sand + vermicompost + FYM along with 4000 ppm IBA (P₂M₄) was recorded as having a significantly higher survival percentage (82.22 %). The minimum survival percentage (48.89 %) was found in the treatment combination of soil + FYM with 3000 ppm IBA (P₁M₁).

The significantly higher survival percentage (82.22%) recorded in the treatment combination of soil + sand + vermicompost + FYM with 4000 ppm IBA (P₂M₄) may be attributed to the synergistic effect of the optimum IBA concentration and a well-balanced growing medium. The application of 4000 ppm IBA promoted rapid adventitious root initiation, increased the number and quality of roots, and enhanced water and nutrient uptake, resulting in vigorous plant establishment. Simultaneously, the growing medium containing soil, sand, vermicompost and FYM provided ideal physical, chemical, and biological conditions for root growth. Sand improved aeration and drainage; vermicompost supplied readily available nutrients, beneficial microorganisms, and growth-promoting substances, while FYM enhanced organic matter content, moisture retention, soil structure, and microbial activity. The combined effect of improved rooting and a favorable rhizosphere environment reduced transplant stress, enhanced plant vigor and ultimately resulted in the highest survival percentage. In contrast, the minimum survival percentage (48.89%) observed in the treatment combination of soil + FYM with 3000 ppm IBA (P₁M₁) may be due to the comparatively lower concentration of IBA, which was less effective in promoting root initiation and development, together with a growing medium lacking sand and vermicompost. The reduced aeration, poorer drainage, and lower availability of readily mineralized nutrients and beneficial microorganisms likely restricted root establishment and nutrient uptake, resulting in weaker cuttings and consequently lower survival percentage. Similar results were also reported by Zala *et al.* (2025) [32] in ficus cuttings and Poonam *et al.* (2024) [33] in Mulberry.

Figure format

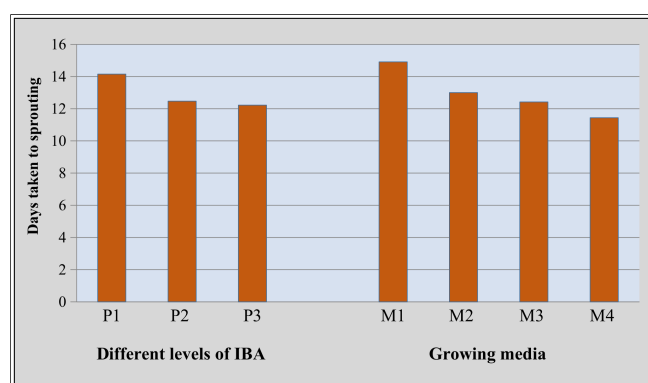


Figure 1. Effect of various levels of IBA with different growing media on days taken to sprouting of crape myrtle

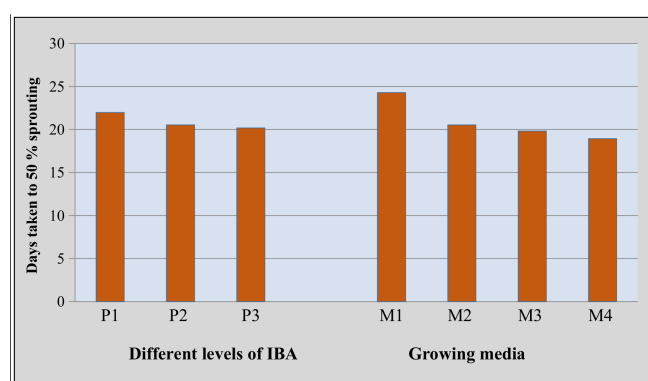


Figure 2. Effect of various levels of IBA with different growing media on days taken to 50 % sprouting of crape myrtle

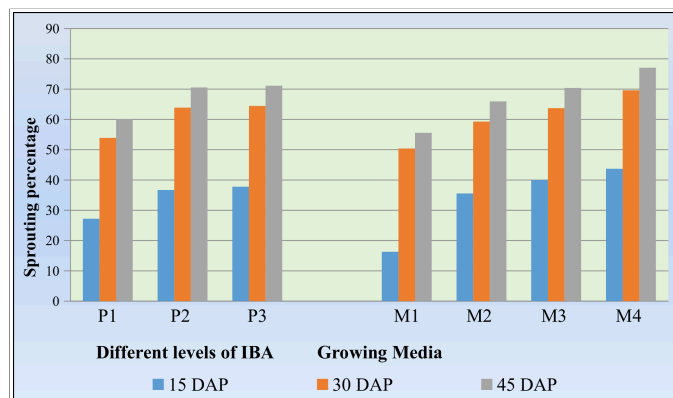


Figure 3. Effect of various levels of IBA with different growing media on sprouting percentage of crape myrtle at 15, 30 and 45 DAP

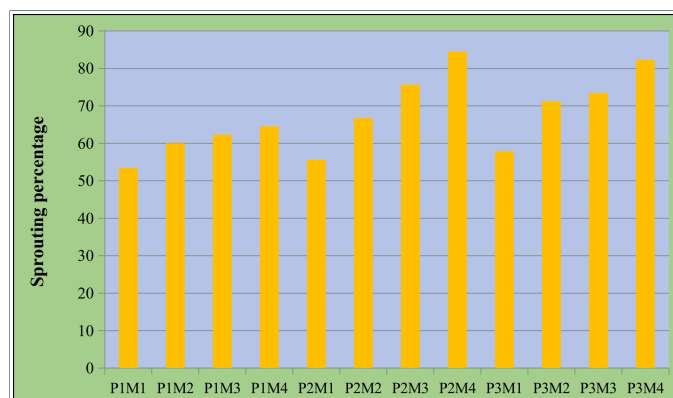


Figure 4. Interaction effects of various levels of IBA with different growing media on sprouting percentage of crape myrtle at 45 DAP

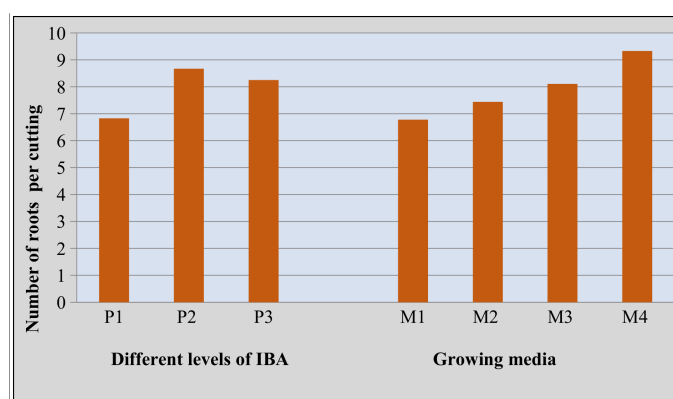


Figure 5. Effect of various levels of IBA with different growing media on number of roots per cutting of crape myrtle at 120 DAP

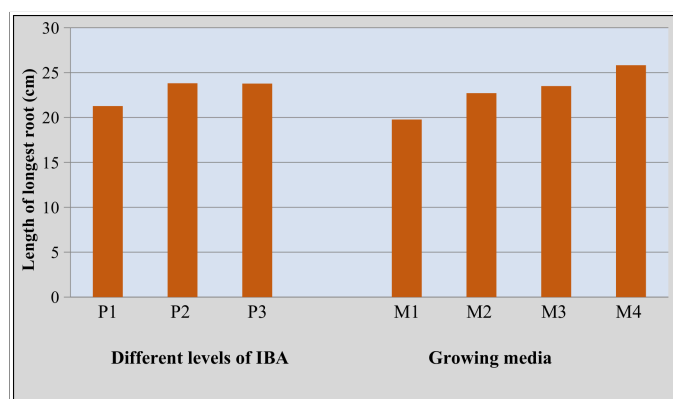


Figure 6. Effect of various levels of IBA with different growing media on length of longest root (cm) of crape myrtle at 120 DAP

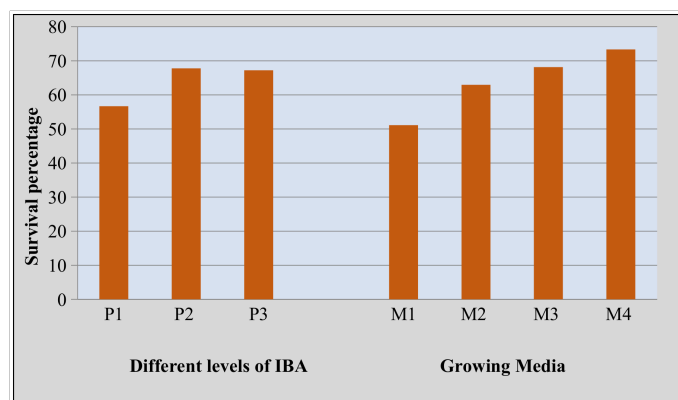


Figure 7. Effect of various levels of IBA with different growing media on survival percentage of crape myrtle at 120 DAP

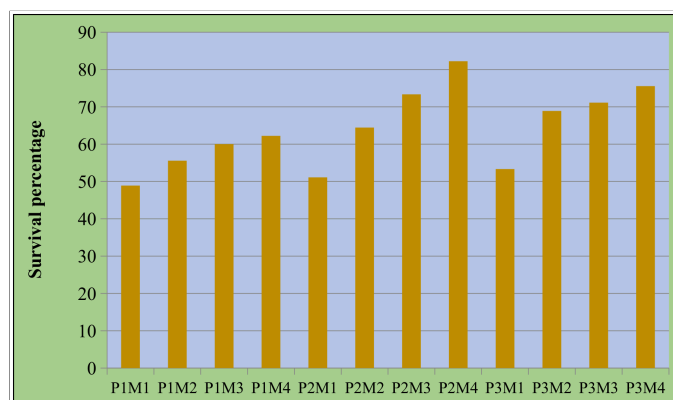


Figure 8. Interaction effect of various levels of IBA with different growing media on survival percentage of crape myrtle at 120 DAP

Table 1. Effect of different levels of IBA and growing media on days taken to sprouting and 50% sprout of crape myrtle [*Largestomia indica* (L.) PERS.]

Treatment	Days taken to sprout	Days taken to 50% sprout
Factor A: Different levels of IBA (P)		
P ₁ – IBA 3000 ppm	14.15	21.97
P ₂ – IBA 4000 ppm	12.47	20.53
P ₃ – IBA 5000 ppm	12.22	20.18
S.Em.±	0.16	0.18
CD at 5 %	0.47	0.51
Factor: B Growing media (M)		
M ₁ – Soil + FYM (1:1)	14.91	24.29
M ₂ – Soil + Sand + FYM (1:1:1)	13.00	20.53
M ₃ – Soil + Vermicompost + FYM (1:1:1)	12.42	19.82
M ₄ – Soil +Sand + Vermicompost + FYM (1:1:1:1)	11.44	18.93
S.Em.±	0.19	0.21
CD at 5 %	0.54	0.59
Interaction (P X M)		
Interaction effect	NS	NS
CV %	4.39	2.97

Table 2. Effect of different levels of IBA and growing media on sprouting percentage of crape myrtle [*Largestomia indica* (L.) PERS.]

Treatment	Sprouting percentage		
	15 DAP	30 DAP	45 DAP
Factor A: Different levels of IBA (P)			
P ₁ – IBA 3000 ppm	27.22	53.89	60.00
P ₂ – IBA 4000 ppm	36.67	63.89	70.56
P ₃ – IBA 5000 ppm	37.78	64.44	71.11
S.Em.±	0.96	1.67	1.20
CD at 5 %	2.74	4.74	3.42
Factor: B Growing media (M)			
M ₁ – Soil + FYM (1:1)	16.30	50.37	55.56
M ₂ – Soil + Sand + FYM (1:1:1)	35.56	59.26	65.93
M ₃ – Soil + Vermicompost + FYM (1:1:1)	40.00	63.70	70.37
M ₄ – Soil +Sand + Vermicompost + FYM (1:1:1:1)	43.70	69.63	77.04
S.Em.±	1.11	1.92	1.38
CD at 5 %	3.16	5.48	3.94
Interaction (P X M)			
Interaction effect	NS	NS	Sig.
CV %	9.84	9.51	6.18

(continued on next page)

Table 3. Interaction effect of different IBA levels and growing media on sprouting percentage at 45 DAP of crape myrtle [*Largestomia indica* (L.) PERS.]

IBA Concentration Growing Media	Sprouting percentage at 45 DAP		
	P ₁ – IBA 3000 ppm	P ₂ – IBA 4000 ppm	P ₃ – IBA 5000 ppm
M ₁ – Soil + FYM (1:1)	53.33	55.56	57.78
M ₂ – Soil + Sand + FYM (1:1:1)	60.00	66.67	71.11
M ₃ – Soil + Vermicompost + FYM (1:1:1)	62.22	75.56	73.33
M ₄ – Soil +Sand + Vermicompost + FYM (1:1:1:1)	64.44	84.44	82.22
S.Em. ±		2.40	
CD at 5%		6.83	

Table 4. Effect of different levels of IBA and growing media on number of roots per cutting of crape myrtle [*Largestomia indica* (L.) PERS.]

Treatment	Number of roots per cutting
Factor A: Different levels of IBA (P)	
P ₁ – IBA 3000 ppm	6.83
P ₂ – IBA 4000 ppm	8.67
P ₃ – IBA 5000 ppm	8.25
S.Em.±	0.17
CD @ 5 %	0.49
Factor: B Growing media (M)	
M ₁ – Soil + FYM (1:1)	6.78
M ₂ – Soil + Sand + FYM (1:1:1)	7.44
M ₃ – Soil + Vermicompost + FYM (1:1:1)	8.11
M ₄ – Soil +Sand + Vermicompost + FYM (1:1:1:1)	9.33
S.Em.±	0.20
CD at 5 %	0.57
Interaction (P X M)	
Interaction effect	NS
CV %	7.59

Table 5. Effect of different levels of IBA and growing media on length of longest root of crape myrtle [*Largestomia indica* (L.) PERS.]

Treatment	Length of longest root (cm)
Factor A: Different levels of IBA (P)	
P ₁ – IBA 3000 ppm	21.27
P ₂ – IBA 4000 ppm	23.82
P ₃ – IBA 5000 ppm	23.78
S.Em.±	0.45
CD at 5 %	1.28
Factor: B Growing media (M)	
M ₁ – Soil + FYM (1:1)	19.78
M ₂ – Soil + Sand + FYM (1:1:1)	22.71
M ₃ – Soil + Vermicompost + FYM (1:1:1)	23.50
M ₄ – Soil +Sand + Vermicompost + FYM (1:1:1:1)	25.82
S.Em.±	0.52
CD at 5 %	1.48
Interaction (P X M)	
Interaction effect	NS
CV %	6.79

(continued on next page)

Table 6. Effect of different levels of IBA and growing media on Survival percentage of crape myrtle [*Largestomia indica* (L.) PERS.]

Treatment	Survival percentage (%)
Factor A: Different levels of IBA (P)	
P ₁ – IBA 3000 ppm	56.67
P ₂ – IBA 4000 ppm	67.78
P ₃ – IBA 5000 ppm	67.22
S.Em.±	1.11
CD at 5 %	3.16
Factor: B Growing media (M)	
M ₁ – Soil + FYM (1:1)	51.11
M ₂ – Soil + Sand + FYM (1:1:1)	62.96
M ₃ – Soil + Vermicompost + FYM (1:1:1)	68.15
M ₄ – Soil + Sand + Vermicompost + FYM (1:1:1:1)	73.33
S.Em.±	1.28
CD at 5 %	3.65
Interaction (P X M)	
Interaction effect	Sig.
CV %	6.02

Table 7. Interaction effect of different levels of IBA and growing media on survival percentage at 120 DAP of crape myrtle [*Largestomia indica* (L.) PERS.]

IBA Concentration Growing Media	Survival percentage at 120 DAP		
	P ₁ – IBA 3000 ppm	P ₂ – IBA 4000 ppm	P ₃ – IBA 5000 ppm
M ₁ – Soil + FYM (1:1)	48.89	51.11	53.33
M ₂ – Soil + Sand + FYM (1:1:1)	55.56	64.44	68.89
M ₃ – Soil + Vermicompost + FYM (1:1:1)	60.00	73.33	71.11
M ₄ – Soil + Sand + Vermicompost + FYM (1:1:1:1)	62.22	82.22	75.56
S.Em. ±		2.22	
CD at 5%		6.32	

Legend: ppm – Parts per million; DAP- Days after planting; S.Em. ± - Standard error of mean;

CD- Critical Difference; CV- Coefficient of variation; Sig.- significant; NS- Non significant.

Conclusion

On the basis of the results obtained from the present investigation, it may be inferred that crape myrtle [*Lagerstroemia indica* (L.) PERS.] cuttings treated with 4000 ppm IBA through the quick dip method and planted in the growing medium comprising Soil + Sand + Vermicompost + FYM (1:1:1:1 v/v/v/v) exhibited superior growth and rooting parameters, along with higher survival percentage.

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