



Evaluating Various Soilless Potting Media for Healthy Mango Nursery Production

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Background and Objectives

Mango is known as 'King of Fruits' because of its unique taste, nutritional value and likeliness by all consumer's group ages. Pakistan ranks at 4th spot in top mango producing countries. From economic point of view, it ranks 2nd spot after citrus within the country in terms of export revenue generated. However, mango industry is facing problems in healthy and certified nursery production. The major reason being use of soil as nursery medium, acting as source of various pathogenic diseases. The use of soilless media as mango nursery media can be solution however, there is great variability among type and sources of soilless media. Although some work on nursery media optimization has already been reported however this is half cooked story. The potential of peat moss as potting media of mango nursery has not been explored. Therefore the objective of trial was to explore the potential of peat moss alone or in combination with soil for healthy mango nursery production.

Methodology

Mango seedling germinated on sugarcane bagasse were used to transplant in the polythene bags containing the following media composition:

Table 1: Composition of media combination used

Media Treatments	Bagasse (%)	Coconut fiber (%)	Silt (%)	Peat moss (%)	Organic compost (%)
T ₁ (Control)	65	05	30	0	0
T ₂	65	05	0	30	0
T ₃	65	05	0	25	5
T ₄	65	05	0	20	10
T ₅	65	05	0	10	20
T ₆	65	05	0	5	25

Each treatment was containing about 40 seedlings (10 seedlings per replication). The seedlings were transplanted in black polythene bags of size length 14-inches and breadth of 7-inches. The transplanted seedlings were kept under lath house and were monitored for various vegetative, physiological attributes and graft success percentage. Various physical and biochemical attributes of each media combination was also evaluated. The experiment was laid down according to completely randomized design (CRD)

Results

- Media combination T2 was most suitable for various physical and biochemical properties (Table 2).

Table 2. Characteristics of media combinations used for mango nursery

Media Combinations	pH	EC (µS/cm)	WHC (%age)	AFP (%age)	Shrinkage (%)
T1=Control*	7.02±0.04C	1025± 14.5A	40±0.05C	14.5±0.5A	9.24A
T2=30% PM+0% OC	7.0± 0.05B	922.5±13.01A	44±0.05A	12.5±0.2AB	4.79BC
T3=25% PM+5% OC	7.3± 0.04AB	786±8.19A	41±0.09BC	11.5±0.8B	6.76AB
T4=20%PM+10%OC	7.2±0.02B	822±12.7A	42±1.4A	13±0.5AB	3.39C
T5=10%PM+20%OC	7.4±0.08A	894±11.4A	41±1.1A	10±0.6B	5.67BC
T6=5% PM+25% OC	7.1±0.01C	815±5.29A	42±1AB	10±0.6B	5.05BC

EC: Electrical Conductivity
Porosity

WHC: Water Holding Capacity, AFP: Air Filled

- Media combination T2 exhibited significant lowest seedling mortality and overall highest flush emergence growth (Table 3).

Table 3. Effect of media combination on mortality and flush emergence %age

Media Combinations	Mortality	1 st flush emergence %age			
		1week	After 1 month	After 2 months	After 3 months
T1=Control*	13 B	16A	40C	80 B	87 B
T2=30% PM+0% OC	5 A	33A	73A	100A	100A
T3=25% PM+5% OC	7 A	23A	56ABC	96A	100A
T4=20%PM+10%OC	11 B	16A	43C	96A	100A
T5=10%PM+20%OC	10 B	23A	53BC	83A	90A
T6=5% PM+25% OC	10 B	16A	66AB	90A	92A
LSD * P ≤0.05	2.05	NS	18.69	15.28	9.87

- Media combination T2 exhibited significant highest graft success percentage and minimum number of days taken by the scion to emerge the flush (Table 4).
- Moreover, media combination T2 exhibited improved physiological attributes of seedling as compared to other combination. (Data not shown).

Table 4. Effect of graft success percentage and days taken by the scion to flush

Media Combinations	Grafting Success %	Days taken to Scion flush
T1=Control*	66A	51 A
T2=30% PM+0% OC	100A	44B
T3=25% PM+5% OC	88 A	50A
T4=20%PM+10%OC	77 A	50A
T5=10%PM+20%OC	100A	51A
T6=5% PM+25% OC	88A	49A
LSD * P ≤0.05	8.11	1.32

Conclusions

- Overall media combination T2 was promising in term of mango seedling growth, graft success percentage and physiological attributes.

Acknowledgements

The support of Mango Research Institute, Multan Pakistan for provision of mango seedlings and pot inputs is highly acknowledged.