# Standardisation of rooting media for propagation of vanilla (*Vanilla planifolia* Andr.)

SIDDAGANGAIAH, B A VADIRAJ[1], M R SUDHARSHAN & V KRISHNAKUMAR[2]

*Indian Cardamom Research Institute*
*Spices Board, Donigal P.O., Sakaleshpur - 573 134, Karnataka, India.*

ABSTRACT

Evaluation of various rooting media indicated that vermicompost and decomposed coir pith were ideal for rooting and multiplication of vanilla (*Vanilla planifolia*).

Key words : propagation, rooting media, *Vanilla planifolia.*

The vanilla of commerce, a flavouring essence, is extracted from the cured, fully developed pods of the tropical orchid *Vanilla planifolia* Andr. Vanilla flourishes well and is more productive under tropical climates with well distributed rainfall and the Western Ghats of South India is suitable for its cultivation. Conventionally vanilla is propagated through cuttings, though recently, tissue culture techniques are also being adopted. However, availability of planting material of vanilla in India is limited and information on a suitable media for its propagation is not available. Hence, the present investigations were undertaken to identify a suitable rooting media for quick multiplication and establishment of vanilla.

The trial was undertakn during 1994 at the Regional Station, Indian Cardamom Research Institute, Sakaleshpur (Karnataka, India). The following nine rooting media were evaluated in the trial : 1) vermicompost 2) sand (> 2mm) 3) vermicompost + sand (1:1) 4) decomposed coir pith 5) undecomposed coir pith 6) potting mixture (forest soil : red earth ; FYM (3:1:1) 7) sphagnum moss 8) degraded leaf litter and 9) semi-degraded leaf litter.

The rooting media were filled in black HDPE polybags (30 x 20 cm) and a single vanilla cutting (20 cm length with three nodes) was planted in each polybag during March 1994. Ten cuttings were planted in each treatment which was replicated thrice in a Randomised Block Design. Observations on rooting were recorded at 4th month after planting. Observations on sprout initiation, sprout length, number

[1] Centre for Water Resources and Development Management, Sub Centre, Kanjikode West Post, Palakkad - 678 623, Kerala, India.

[2] Indian Cardamom Research Institute, Spices Board, Myladumpara, Kailasanadu - 685 553, Kerala, India.

of leaves and leaf area per cutting were recorded at 2nd, 4th and 8th month after planting and the data was analysed statistically.

Sprout initiation (at the end of 8th month) and rooting was significantly higher in vermicompost, decomposed coir pith, vermicompost + sand, degraded leaf litter and semi - degraded leaf litter. Though significantly higher rooting was recorded when undecomposed coir pith and potting mixture were used, sprout initiation was not significant. Sprout length and number of leaves per cutting (at the end of 8th month) and root length were significantly higher in vermicompost and decomposed coir pith (Tables 1-3). Thus, establishment of vanilla cuttings was better in vermicompost and decomposed coir pith compared to the other media. This may be attributed to the availability of plant nutrients and growth promoting substances in vermicompost (Neilson 1964) and higher moisture rentention capacity and nutrient content of NPK in coir pith (Nagarajan, Manickam & Kothandaraman 1985). However, vermicompost was better than decomposed coir pith with respect to leaf area in the cuttings.

Vermicompost has gained importance recently due to its multiple utility. The cost of production of vermicompost is around Re.1/kg (Jasvir Singh & Sudharshan 1995). The cost of produc-

**Table 1. Influence of rooting media on establishment of vanilla cuttings**

| Rooting media | No. of sprouts | | | Sprout length (cm) | | |
|---|---|---|---|---|---|---|
| | 2nd month | 4th month | 8th month | 2nd month | 4th month | 8th month |
| Vermicompost | 0.77 | 1.37 | 1.73 | 5.63 | 11.00 | 63.53 |
| Sand (> 2 mm) | 0.43 | 0.73 | 1.10 | 2.13 | 2.57 | 19.90 |
| Vermicompost + Sand | 0.67 | 1.00 | 1.50 | 3.87 | 7.27 | 55.40 |
| Decomposed coir pith | 0.73 | 1.03 | 1.67 | 4.43 | 10.63 | 59.83 |
| Undecomposed coir pith | 0.43 | 0.67 | 1.10 | 2.07 | 3.70 | 25.33 |
| Potting mixture (Forest soil + Sand + FYM) | 0.40 | 0.77 | 1.10 | 1.67 | 2.10 | 31.00 |
| Sphagnum moss | 0.48 | 0.83 | 1.27 | 2.00 | 3.03 | 30.53 |
| Degraded leaf litter | 0.67 | 1.07 | 1.43 | 2.57 | 5.07 | 44.80 |
| Semi - degraded leaf litter | 0.73 | 1.00 | 1.57 | 2.63 | 5.90 | 48.70 |
| CD (P = 0.05) | 0.16 | 0.38 | 0.41 | 1.14 | 0.77 | 3.85 |

**Table 2. Influence of rooting media on establishment of vanilla cuttings**

| Rooting media | Number of leaves/vine | | | Leaf area/vine ($cm^2$) | | |
|---|---|---|---|---|---|---|
| | 2nd month | 4th month | 8th month | 2nd month | 4th month | 8th month |
| Vermicompost | 1.30 | 2.20 | 15.77 | 10.93 | 30.37 | 716.50 |
| Sand (> 2 mm) | 0.40 | 0.60 | 4.50 | 3.63 | 7.67 | 136.30 |
| Vermicompost + Sand | 0.70 | 1.60 | 12.13 | 6.60 | 20.47 | 444.70 |
| Decomposed coir pith | 1.07 | 2.20 | 14.10 | 9.44 | 28.17 | 551.07 |
| Potting mixture (Forest soil + Sand + FYM) | 0.30 | 0.60 | 10.97 | 2.70 | 7.67 | 228.33 |
| Sphagnum moss | 0.30 | 0.80 | 10.90 | 2.70 | 10.23 | 231.90 |
| Degraded leaf litter | 0.60 | 1.20 | 10.77 | 5.70 | 15.37 | 289.00 |
| Semi - degraded leaf litter | 0.70 | 1.40 | 12.80 | 6.30 | 17.90 | 316.33 |
| CD (P = 0.05) | 0.26 | 0.47 | 1.99 | 1.85 | 6.32 | 73.92 |

**Table 3. Influence of rooting media on rooting of vanilla cuttings**

| Rooting media | No. of roots | Root length (cm) |
|---|---|---|
| Vermicompost | 1.00 | 26.83 |
| Sand (> 2 mm) | 0.77 | 5.33 |
| Vermicompost + Sand | 0.97 | 20.17 |
| Decomposed coir pith | 1.00 | 25.00 |
| Undecomposed coir pith | 0.93 | 16.33 |
| Potting mixture (Forest soil + Sand + FYM) | 0.93 | 15.67 |
| Sphagnum moss | 0.77 | 14.17 |
| Degraded leaf litter | 1.00 | 17.50 |
| Semi - degraded leaf litter | 1.00 | 18.83 |
| CD (P = 0.05) | 0.15 | 2.84 |

Observations at 4th month after planting

tion of decomposed coir pith is also not more than Re. 1/kg. Hence, vemicompost and decomposed coir pith which are efficient and cost effective can be used as rooting media for production of vanilla cuttings.

## References

Jasvir Singh & Sudharshan M R 1995 Vermiculture, a simple technology for rich compost. Indian Coffee 59 : 506.

Nagarajan R, Manickam T S & Kothandaraman G V 1985 Manurial value of coir pith. Madras Agric. J. 72 : 533-535.

Neilson R L 1964 Presence of plant growth regulators in earthworm cast demonstrated by chromatography and ment pea test. Nature 208 : 1113-1114.