

Response of root trainer plants of rubber (*Hevea brasiliensis*) to different potting medium



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Introduction



The root trainer plants of rubber (*Hevea brasiliensis*) have many advantages over earlier planting materials and is being popularized among rubber growing countries.

- . Absence of coiled tap root
- . Profuse lateral root establishment
- . Easy transportation and field planting
- . Better field establishment

Lengthy root system with a modified root architecture for root trainer plants was achieved recently —Modified root trainer plant (M RTP) (Thomas *et al.*,2013)

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- Split** the root trainer cup into two equal halves and **tied together**
 - Widen the drainage hole** at the bottom of the cup
 - Place the plant** with the modified cup tightly at the top of a **root elongation tube** (RET) filled with **coir pith** as potting medium



After 75 days, profuse development of both lateral and tap root (**root length of 90cm**) was observed **within the RET**



Roots from the RET were allowed to grow further into the soil

Control

After 105 days

MRTP



Plants developed the third whorl of leaf

Average root elongation within the RET is estimated to be 1.20 cm daily

Root length for MRTP
134.5cm

Root length for control plants- **71cm**



Objective

To study the response of air pruned roots to different potting medium in the RET

To identify the best suited potting medium

Materials & Methods

- Clone: RR11 430
- No.of plants: 10
- Capacity of RT cup: 800cc
- Duration of the study: 2 months
- Location: HBSS, Paraliar, Tamilnadu

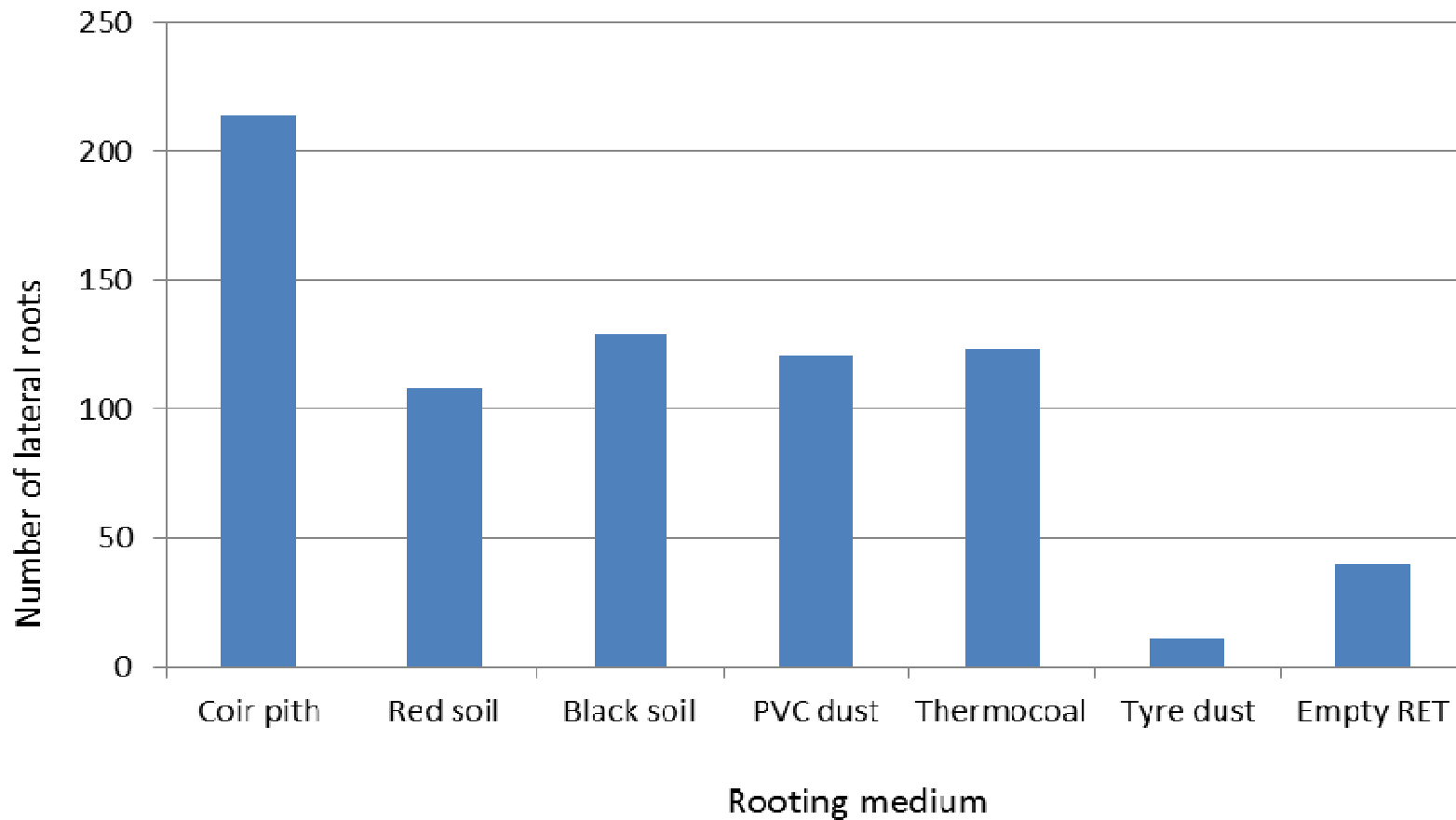
Treatment	Potting medium
	Natural material
T1	Coir pith
T2	Red soil
T3	Black soil
	Synthetic material
T4	PVC dust
T5	Thermocoal
T6	Tyre dust
T7	With empty RET

Type of materials used as potting medium

Root characteristics in different potting medium

Treatment	No. of vertical roots	Length of root core (cm)	Diameter of roots (mm)
T1 Coir pith	10.70 (3.26)	50.80	1.95
T2 Red soil	7.70 (2.72)	18.90	2.85
T3 Black soil	8.60 (2.90)	19.90	1.80
T4 PVC dust	10.10 (3.16)	25.30	1.65
T5 Thermocoal	10.30 (3.18)	24.70	1.80
T6 Tyre dust	10.40 (3.19)	13.60	2.95
T7 Empty RET	8.11 (2.82)	11.11	1.22
CD (P<0.05)	NS	4.33	0.27

Number of lateral roots developed in the RET filled with different rooting media



Development of root into
RET filled with different
potting medium



Coir pith



Tyre dust



Thermocoal



Black soil

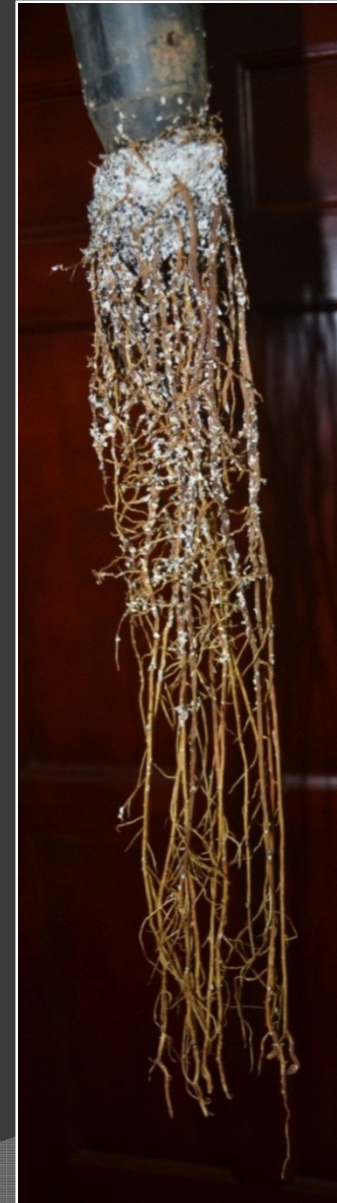


Red soil





PVC dust



○ The physical and chemical composition of the material used as potting media is important as far as root modification is concerned

○ All the treatments except tyre dust developed both vertical and lateral roots while tyre dust developed stiff vertical roots with few lateral roots

Conclusion

- Among the potting media used for RET, **coir pith** is found to be the best for better root establishment as the case with root trainer plants
- The use of **waste materials** as a container growth medium component for root elongation of rubber is a viable alternative
- The results given by the two synthetic materials *viz.*, **PVC dust and thermocoal**, are also encouraging which needs further investigations so that the environmental problems caused due to the accumulation of these synthetic materials including tyre waste can be solved to a great extent by its proper use

A clean environment!



Clean the Environment by
Waste material utilisation for
the betterment of **RUBBER**





Thanks