EFFECT OF POTTING MEDIA COMPOSITION FOR FLOWER BUD LENGTH IN POT GROWN ROSE (*Rosa chinensis* Jacq.)

*Rajsekar, P., J. Suresh and K. R. Rajadurai

Department of Floriculture and Medicinal Crops, HC & RI, Periyakulam – 625 604

Corresponding author: raja.madurai1988@gmail.com,* Mob. No. - 9655669729

Keyword: (Potting Mixture, Flower character, *Rosa chinensis* Jacq.)

INTRODUCTION

Miniature rose (*Rosa chinensis* Jacq.) is a dwarf bush with small leaves and flowers. It grows upto a height of 0.25 to 1m. It has various colours, types and flower forms. But these petite rose in which everything is on a miniature including the stems, the leaves and the flowers. Rose, a symbol of affection, elegance, inspiration and source of aesthetic graftification, is most famous and popular flower in global floriculture trade. It belongs to the family Rosaceae and genus Rosa, which contains 200 species and more than 18,000 cultivars (Gudin, 2000).

MATERIALS AND METHODS

PLANTING MATERIAL

Six month old uniform budded three cultivars of miniature rose *viz.*, 'Red Kudthki'(V_1), 'Pink' (V_2) and 'Summer Snow' (V_3) were selected.

GROWING MEDIA

Different growing media like soil, farmyard manure (FYM), leaf mould, vermicompost, coco peat, perlite, and vermiculite were used in all possible combinations to find out the best growing media for miniature rose to obtain highest bud length.

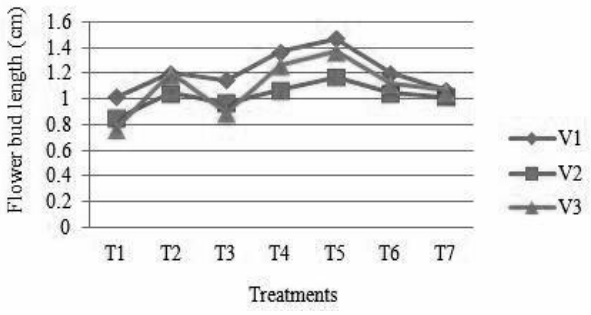
The experiment was laid out in Factorial Completely Randomized Design with two factors *viz.*, cultivars (Factor I) and growing media (Factor II). The treatments were replicated four times.

RESULTS AND DISCUSSION

Effect of growing media on flower bud length of three cultivars of miniature rose are given in the Table 1. The cultivar, V_1 (Red Kudthki) registered significantly the highest flower bud length (1.21 cm) followed by V_3 (Summer Snow) which recorded flower bud length of 1.10 cm. Among the different growing media, T_5 Soil+ Coco peat + Leaf mould (1:1:1 v/v) recorded the highest flower bud length (1.34 cm). The lowest flower bud length (0.88 cm) was registered in T_1 Soil+ FYM (1:1 v/v). Interaction effect of growing media and cultivars showed significant difference among the treatments, T_5V_1 (Soil+ Coco peat + Leaf mould + cv. Red Kudthki) recorded the highest flower bud length (1.47 cm). The flower bud length (cm) of three cultivars of miniature rose was given in the Fig. 1. The cultivar, 'Red Kudthki' (V_1) registered significantly the highest flower bud length (1.21 cm). Among the different growing media, Soil + Coco peat + Leaf mould (T_5)

recorded the highest mean flower bud length (1.34 cm).This might be due to the nitrogen content of potting mixture was greatly influences vegetative growth and photosynthetic rate per unit leaf area to control the production of carbohydrates and other photosynthetic products (source activity) and reproductive storage organs (sink capacity) as reported by Enggels *et al.* (1995). Container production of ornamental plants has depended almost entirely on quality soil-less media derived from both organic and inorganic constituents. Coco peat which is a horticultural by product obtained after extraction of fiber from coconut husk (Abad *et al.*, 2002), is in high demand to be used as substrate for production of various floriculture crops. The reason is that it not only has many characteristics in common with peat (Lennartsson, 1997) but also has acceptable pH, electrical conductivity and other chemical properties (Abad *et al.*, 2002).

Fig. 1 Effect of media composition on flower bud length (cm) of miniature rose cultivars



Treatments/ Varieties	V_1	V_2	V_3	**Mean**
T_1	1.02	0.85	0.77	0.88
T_2	1.20	1.05	1.20	1.15
T_3	1.15	0.97	0.90	1.00
T_4	1.37	1.07	1.27	1.24
T_5	1.47	1.17	1.37	1.34
T_6	1.20	1.05	1.12	1.12
T_7	1.07	1.02	1.07	1.05
Mean	1.21	1.02	1.10	

Table 1. Effect of media composition on flower bud length (cm) of miniature rose cultivars

DISCUSSION

For successful growing of miniature rose for better bud length, the basic prerequisite is Soil + Coco peat + Leaf mould (1:1:1 v/v) ideal growing media properties should be locally available and cheap too. Most soils do not have these qualities to produce optimum root and plant growth. Hence, growers may use this potting mixture to rejuvenate the plant and increasing the quality flowers for longer period of time.

REFERENCE

Abad, M., P. Noguera, R. Puchades, A. Maquieira and V. Noguera. 2002. Physico-chemical and chemical properties of some coconut dust for use as a peat substitute for containerized ornamental plants. *Bioresour Technol.,* **82**: 241-245.

Enggels, C. and H. Marschner. 1995. Plant uptake and utilization of nitrogen. I*n:* P.E. Bacon (Ed.) *Nitrogen fertilization in the environment. Marcel Dekker*, New York, pp. 41-48.

EVALUATION OF TRANSGENIC PLANTS FOR RESISTANCE TO PEANUT STEM NECROSIS DISEASE (PSND) IN GROUNDNUT

*M. Gurivi Reddy, V. K. Satya, R. Adhithya, C. Senthilraja, R. Velazhahan

Department of Plant Pathology, Centre for Plant Protection Studies,

Tamil Nadu Agricultural University, Coimbatore- 641 003, Tamil Nadu, India

**Corresponding author: gurivisony@gmail.com, Ph. 09626126231*

***Keywords*:** (*Arachis hypogaea*, replicase, genetic engineering)

INTRODUCTION

Peanut stem necrosis disease (PSND) caused by *Tobacco streak virus* (TSV) is a major limiting factor to groundnut cultivation in India. The feasibility of controlling peanut stem necrosis disease (PSND) caused by *Tobacco streak virus* (TSV) in groundnut (*Arachis hypogaea* L.) was explored by expressing double stranded (ds) RNA of the replicase (Rep) gene of TSV in groundnut through genetic engineering. A partial Rep gene construct containing 535 bp sense and antisense TSV-Rep sequences flanking a 742 bp spacer sequence (*Pdk* Intron) under the control of the constitutive *Cauliflower mosaic virus* (CaMV) 35S promoter was made in the binary vector pART27. This chimeric gene construct was then mobilized into *Agrobacterium tumefaciens* strain LBA4404 *via* triparental mating using pRK2013 as a helper. Cotyledon explants of groundnut cultivar TMV-7 were transformed with *A. tumefaciens* harbouring the hpRNA cassette. Transgenic plants developed upon transformation are evaluated for resistance against *Tobacco streak virus*.

MATERIALS AND METHODS

MECHANICAL INOCULATION

In order to maintain the TSV inoculum, groundnut leaves showing severe symptoms were ground in 0.1 M phosphate buffer (pH 7.2) containing 0.1% 2-mercaptoethanol using a pre-chilled pestle and mortar (1 g of tissue per 10 ml of buffer). The extract was mechanically inoculated onto 600-mesh Carborundum-dusted leaves of 4-6 day-old cowpea (*Vigna unguiculata* (L.) Walp, cv. C152) plants, which were maintained in insect-proof cages in the greenhouse as described by Ramiah *et al*. (2001). T_1 progeny derived from the primary transformant (TSV-IR-Rep) was screened under greenhouse conditions for viral resistance by mechanical inoculation with TSV. To prepare the inoculum, TSV-infected cowpea leaves (1 g) were ground in 5 ml of 50 mM potassium phosphate buffer (pH 7.2) using a pre-chilled pestle and mortar. Infectious sap was rubbed onto carborundum-dusted upper leaf surfaces of quadrifoliate leaves of test plants at a three-leaf growth stage. Inoculated leaves were washed

with distilled water and kept in the insect-proof glass house at 22 ± 2°C for 4-5 weeks and observed for symptom expression at 2-week intervals until the plants were 3 months old (Kalyani *et al*., 2007).

RESULTS AND DISCUSSION

Progeny from individual T_0 plants (i.e., the T_1 generation) was tested for TSV resistance using a standard mechanical rubbing method. The bioassay results indicated that necrotic lesions were observed on the leaves of the wild- type plants 7-9 days after inoculation and stem necrosis appeared 16-20 days after inoculation, whereas all the transgenic plants did not develop symptoms as shown below.

Transgenic **Wild type**

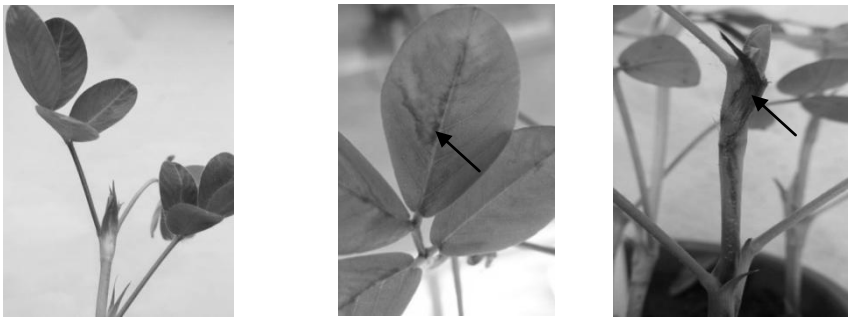


Fig. 1. Healthy plant 2. Necrotic lesions on inoculated leaves and stem

CONCLUSION

Engineering virus-resistant transgenic crops through RNA silencing offers a promising approach for creating virus-resistant varieties of agriculturally important crop plants. Above studies have clearly demonstrated that expression of virus-derived dsRNA can effectively induce RNA silencing that lead to high levels of resistance to viral infection in transgenic plants.

REFERENCES

Kalyani, G., Reddy, A.S., Kumar, P.L., Rao, R.D.V.J.P., Aruna, R., Waliyar, F. and Nigam, S.N. 2007. Sources of resistance to *Tobacco streak virus* in wild *Arachis* (Fabaceae: Papilionoidae) germplasm. *Plant Disease*. **91**: 1585-1590.

Ramiah, M., Bhat, A.I., Jain, R.K., Pant, R.P., Ahlawat, Y.S., Prabhakar, K. and Varma, A. 2001. Isolation of an isometric virus causing sunflower necrosis disease in India. *Plant Disease*. **85**: 443.