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Impact of potting mixture and size of cutting on propagation of betel (*Piper betle* L.)

M. Lakshi[1], K. Vithusan[1], W. K. S. Chandrasiri[1], R. G. J. Perera[1] and J. P. Kirthisinghe[2*]

[1]Faculty of Agriculture, Aquinas College of Higher Studies, Colombo 8, Sri Lanka
[2]Postgraduate Institute of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka
jpkirthi@pdn.ac.lk*

Betel is an export agriculture crop grown as an intercrop throughout Sri Lanka. The Sri Lankan betel growers are disorganized and not adhering to standard production practices recommended by the Department of Export Agriculture. Generally, about 50% of the cuttings qualify for field planting due to poor cultural practices. Therefore, the study was conducted to identify the optimum size of a cutting and a low cost potting mixture for obtaining best quality nursery plants for field planting. The study was conducted at Vairavapuliyankulam in *Vavuniya* District during Yala season in 2019. Nine treatment combinations with three fumigated potting mixtures of top soil: sand: cattle dung: coir dust 1:1:1:1 (control/ M_1), top soil: sand: cattle dung: paddy husk 1:1:1:1 (M_2), top soil: sand: cattle dung: sawdust 1:1:1:1 (M_3) and three sizes of cuttings of three nodal (N_1), four nodal (N_2) and four nodal with apical bud (N_3), were used for the experiment. The cuttings were treated with a fungicide mixture (copper sulphate and lime) for 2 minutes followed by Rootone®. The experiment was triplicated. Data were collected at 3, 6 and 8 weeks after planting (WAP) of cuttings. At 8 WAP in four nodes cuttings with the apical bud in potting mixture of top soil: sand: cattle dung: coir dust 1:1:1:1 had the longest new shoot length of 8.1 cm, highest fresh weight of new shoot of 121 mg, highest dry weights of new shoot 18.1 mg, highest number of roots of 21 per plant, per plant root length of 13 cm and highest root dry weight of 2 mg. There was no significant difference observed between potting mixtures of M_2 and M_3. This study revealed that coir dust cannot be replaced by sawdust or paddy husk. Four nodes cuttings with the apical bud (N_3) produced better plants than the three nodal (N_1) and four nodal (N_2) cuttings without an apical bud in M_1 potting mixture.

Keywords: Cattle dung, Coir dust, Paddy husk, Sawdust, Size of cutting