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Importance of using coloured shade fabric in betel (*Piper betle* L.) propagation

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Betel (*Piper betle* L.) is an export agriculture crop and cultivated in an area of 1427 ha in Sri Lanka. The nursery period of traditional propagation method takes 3 months. Therefore, an experiment was conducted to reduce the nursery period using coloured high quality flame retardant, heavy-duty lock stitch knit black and blue coloured shade fabric made specifically for shade covers of 50% and 75% shade. The research was conducted in a grower's field at Wariyapola in the Kurunegala district, during yala season in 2019. Three nodal cuttings were taken for the experiment, from healthy orthotropic branches of high yielding mother vines of variety Maneru. The leaf which was located below the 2nd node was removed and the lowest node of the cutting was buried in the pot filled up to 15 cm with fumigated moist rooting medium. The potting medium was prepared by using equal parts of top soil, sand, cow manure and coir dust. The pots were kept for 21 days in a propagator and survival rate was 96%. Healthy plants were transferred into six treatments. Twelve pots were used for each treatment. High quality lock stitch knit black and blue coloured 50% and 75% shade fabric made specifically for shade covers were used as treatments. 50% and 75% shade coir netting was used as the control. Randomized complete block design was used for the experiment. Duncan's Multiple Range Test was used for mean separation. Shoot height, number of new leaves per cutting, shoot fresh weight, shoot dry weight, leaf temperature, number of roots, root length and root fresh weight were measured. At 75 days after planting of the cuttings in pots, the following results were obtained. The treatment with 50% blue shade was significantly different compared to the other treatments and it gave the longest shoot length of 30 ± 2.1 cm, the highest shoot fresh weight of 39.2 ± 3.3 g and the highest shoot dry weight of 5.8 ± 0.4 g. No significant difference was observed between treatments for number of new leaves per cutting, leaf temperature, number of roots, root length and root fresh weight. The results of the study concluded that 50% blue shade is better for betel propagation using three nodal cuttings, so that it is important to use 50% blue shading material in betel commercial nurseries for better growth of cuttings as it can reduce the nursery period to 75 days and the mortality rate in the field.

Keywords: Betel, Shading material, Propagation