Studies on growth performances of *Chirita moonii* as affected by rooting media, hormone levels and method of propagation

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Abstract

Chirita moonii is an endemic wild flowering plant which belongs to family Gesneriaceae. Genus *Chirita* contains about 80 species; four species endemic to Sri Lanka are *C. moonii*, *C. walkerae*, *C. angusta* and *C. zeylanica*. Although propagation of *Chirita moonii* is possible either by seedlings, cuttings or leaves, documented materials about researches are very limited. This research was undertaken to determine the most suitable rooting media, rooting hormone combination and their level on stem and leaf cuttings as well as effect of Gibberelline on growth and flowering of seedlings.

The research was conducted as three experiments with 10 replicates. Completely Randomized Design was used as experimental design. First experiment was to find out the most suitable rooting media and NAA level for rooting of Cuttings. Two rooting media were used as sand and sand + coir dust (1:1) and four NAA levels were used as 0ppm, 100ppm, 150ppm and 200ppm. 10-15cm long softwood cuttings were used as planting materials. Survival percentage, shoot length and number of new leaves were recorded at 3 weeks intervals. Average root length, root fresh weight and root vigor were recorded after 3 months of planting. In the second experiment, three rooting media as sand, coir dust and sand + coir dust (1:1) and four NAA levels as 0ppm, 1000ppm, 2000ppm and 3000ppm were tested on rooting of leaves. Number of primary roots, average root length, root fresh weight and root vigor were recorded after 3 months of planting. In experiment three, effect of Gibberelline on growth and flowering of seedlings were investigated using five GA_3 levels as 0ppm, 50ppm, 100ppm, 150ppm and 200ppm. Plant height, inter nodal length, number of new leaves, petiole length, leaf size, number of branches and number of flowers/ plant were recorded at 2 weeks intervals.

It was found from results in experiment one that cuttings grown in sand + coir dust (1:1) media treated with 150ppm NAA level significantly ($p<0.05$) increased the root fresh weight, root length and the root vigor. Cuttings planted in sand + coir dust media shows the higher shoot length than sand media. NAA level was not effective for shoot growth. Treatments were not significantly affected on the number of new leaves.

Leaves planted in Sand + coir dust (1:1) media treated with 1000ppm NAA recorded the highest root fresh weight, number of roots and root length.Seedlings treated with 150ppm GA_3 showed the best plant height, inter nodal length, number of new leaves leaf length and number of branches. It is also observed that three months duration was not sufficient to investigate the effect of GA_3 on flowering.

According to the experimental results; Sand + coir dust (1:1) media with 150ppm NAA level was the best for root growth performances in soft wood cuttings of *Chirita mooni.* Sand + coir dust (1:1) media with 1000ppm NAA was best for root growth performances in *Chirita moonii* leaves. 150ppm GA_3 was the best for growth performances in *Chirita moonii* seedlings.

Keywords: Hormone, Propagation, Rooting Media, Growth Performance