

**IMPACT OF DIFFERENT DAY LENGTHS ON YEAR-ROUND TUBER PRODUCTION OF *Coleus rotundifolius* (Poir.)**

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*Coleus rotundifolius* (Poir.), which is commonly known as *innala*, is a minor tuber crop in Sri Lanka. Although it has a high demand in the local market, yield is restricted to January and February months in the year due to short-day requirement for tuberization. This study was accomplished to investigate the possibility of developing a technology to ensure year-round production of *innala* through induction of tubers in offseason by altering the day length. Two *innala* selections; *Gannoruwa* and *Thelijjawila* and four-day length combinations; long-day length followed by a short-day length, long-day length followed by ambient day length, ambient day length followed by a short-day length, and ambient day length throughout (control) were combined to form a factorial experiment with eight treatments. The treatments were arranged in a Randomized Complete Block Design with three replicates. The plants were exposed for 13 hours of light per day (11 sunshine hrs and 2 hrs of artificial light using LED bulbs) for the long-day length treatment, intended for the 2.5 months while the short-day length was provided exposing plants for 11 hrs per day using the black cloth treatment during two months of tuberization phase. The results revealed that the interaction between selections and day lengths were insignificant ( $p>0.05$ ). Vegetative growth of both selections was significant under the long-day length. Shoot length, internodal length, number of branches, number of leaves and leaf area were increased by 66.9%, 71%, 11.8%, 31% and 326%, respectively, under the artificial light than the ambient day length in *Gannoruwa* selection while 163%, 108%, 83.2%, 65% and 236%, enhancement was recorded for the same parameters respectively, in *Thelijjawila* selection. Tuber initiation in both selections was observed under artificially provided long days followed by short day condition and therefore, it can be used to assure the year-round availability of *innala*.

**Keywords:** *Innala*, Long days, Short days, Tuber initiation, Vegetative growth