# Application of Chlorophyll Fluorescence Transient Analysis to Determine the Photosynthetic Performance of Two Ornamental Foliage Species under Colored Shade Nets

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Qualitative and quantitative changes in exposed light are major factors affecting the photosynthetic efficiency of cut foliage. Although the black shade net is recommended for most ornamental species, the photosynthetic performance under colored shade nets has not been studied sufficiently for such species. In this study, we attempted to investigate the effect of color shade nets (black, red, white and blue) on the photosynthetic performance of *Dracaena sanderiana* (White variety) and *Dracaena surculosa* (Florida Beauty and Japanese bamboo varieties). Chlorophyll fluorescence data were collected through OJIP analysis using a portable fluorometer (Fluor Pen, FP 100). Leaf chlorophyll contents, root: shoot ratio (dry weight basis), and leaf color were measured. The light spectrum under the four color nets changed from 318 nm to 885 nm with contrasting peaks under each net as recorded with a spectroradiometer (Spectrapen mini, PSI). The performance index (PI) which is derived from the absorption per reaction center (ABS/RC), maximum quantum yield of primary photochemistry (ϕPo), and electron transport efficiency (ϕEo) was significantly higher in black shade nets compared to other treatments in *D. sanderiana* (White variety) and *D. surculosa* (Gold dust varieties). There is no significant difference ($p>0.05$) in the PI of *D. surculosa* (Florida beauty) under different nets. A significant difference in leaf colur among the treatments in all tested species was also not observed. Highest root: shoot ratio was observed in the plants under red shade nets. We conclude that all the colored shade nets can be recommended for *D. surculosa* (Florida beauty) and black shade nets can be recommended for *D. sanderiana* (White variety) and *D. surculosa* Gold dust varieties as revealed by the chlorophyll fluorescence transient analysis.

**Keywords:** Chlorophyll-fluorescence, Color net, Cut foliage, OJIP transient analysis, Photosynthesis

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