

The Effect of Light Intensity on the Growth and Chlorophyll Fluorescence Parameters of Three *Ardisia* Genus Native to Korea

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This study investigated the growth and chlorophyll fluorescence reactions of three *Ardisia* genus grown under various indoor light intensity conditions with the aim of evaluating their suitability as indoor plants. Young seedlings of *A. crispa* (Thunb.) A.DC., *A. pusilla* DC., and *A. japonica* (Thunb.) Blume were used in the experiment. The plants were cultivated indoors for 10 weeks under different light intensities: 10, 50, 100, and 200 PPFD ($\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$), and their growth was compared with that of plants cultivated in a greenhouse during the same period (mean value 236.8 ± 20.4 PPFD at noon). Also, chlorophyll fluorescence analysis was investigated with a portable PAM fluorometer. The indoor plants were maintained at 12/12 h photoperiod, temperature at $25\pm 1^\circ\text{C}$, and humidity at $55\pm 3\%$. Irrigation frequency (once every three days) was the same for the indoors and the greenhouse. The results of growth in three *Ardisia* plants showed that almost all parameters except leaf number and chlorophyll content had similar levels regardless of light intensity. *A. crispa* and *A. pusilla* plants grown in 200 PPFD were investigated to have low chlorophyll contents. Meanwhile, chlorophyll fluorescence parameters differed based on light levels. In *A. crispa*, the Fv/Fm (0.77), DIo/RC (0.47) and Fm/Fo (4.77) parameters tended to be poor at 200 PPFD compared to those at other light intensities. Similarly, the DIo/RC, Fm/Fo, and Pi_Abs parameters of *A. pusilla* plant (200 PPFD) are 0.45, 4.48 and 2.42, respectively, which can be considered stress. The analysis of fluorescence in *A. japonica* showed that all parameters except ETo/RC had similar levels regardless of light intensity. The ETo/RC parameter was 0.49 and 0.72 in the control plants and plants 200 PPFD, respectively, which was lower than those in plants at other light intensities. Therefore, it seems that the relatively high light intensity acted as a stressor for *Ardisia* plants.

Key words: DIo/RC, Fv/Fm, Myrsinaceae, OJIP analysis

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