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RESEARCH PAPER

Influence of plant growth promoters and growing systems on physiological parameters of *Dendrobium* cv. EARSAKUL

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Abstract : The study was carried out to investigate the influence of plant growth promoters and systems of growing on physiological parameters of *Dendrobium* cv. EARSAKUL. The main objective was to assess the response of combination of nutrients, plant growth regulators and plant growth promoting root endophyte (PGPRE) in two age groups of *Dendrobium* cv. EARSAKUL plants (six month old and three year old at planting time) under three growing systems viz., two level shade house (S_1), top ventilated polyhouse (S_2) and fan and pad system (S_3). Results revealed that leaf area (29.99 m^2), relative growth rate ($0.013 \text{ g g}^{-1} \text{ day}^{-1}$) and number of stomata (41.14) were highest in six month old plants, whereas, dry matter production ($20.92 \text{ g plant}^{-1}$) and crop growth rate ($0.148 \text{ g m}^{-2} \text{ day}^{-1}$) were highest in three year old plants in the treatment POP + OM + VW + PGPRE + bone meal + GR (T_4). Dry matter production ($14.27 \text{ g plant}^{-1}$), crop growth rate ($0.131 \text{ g m}^{-2} \text{ day}^{-1}$), rate of photosynthesis ($6.36 \mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$) and transpiration rate ($6.56 \mu\text{mol m}^{-2} \text{ s}^{-1}$) during day time were highest in the treatment POP + OM + VW + PGPRE + bone meal (T_3) in six month old plants. Among the systems of growing, maximum values for physiological parameters were recorded in top ventilated polyhouse. The interaction of plant growth promoters and systems of growing had significant effect on physiological parameters.

Key Words : *Dendrobium* cv. EARSAKUL, Inorganic nutrients, Plant growth promoting root endophyte (*Piriformospora indica*), Growing systems, Physiological parameters

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