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Peningkatan Laju Pertumbuhan dan Kandungan Flavonoid Klon Daun Dewa (Gynura pseudochina (L.) DC) Melalui Periode Pencahayaan[1]

Increasing Growth Rate and Flavonoids Content of Gynura pseudochina (L.) DC Clones Through Lighting Periods

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ABSTRACT

Lights are influential to increase plant flavonoids content. The bioactives is needed as medication for human cancer. The research objectives were to investigate the effect of lighting periods on the growth and flavonoid content of Gynura pseudochina clones. A split plot design was used with lighting periods as the main plots (100% light (full light) for 4 months; 25% shading for 1 month, full light 3 months; 25% shading for 2 months, full light for 2 months; 25% shading for 3 months, full light for 1 months; 25% shading for 4 months; 50% shading for 1 month, full light for 3 months; 50% shading for 2 months, full light for 2 months; 50% shading for 3 months, full light for 1 montht; 50% shading for 4 months) and sub plots were two clones (clone 9 from in vitro culture and clone 7 from shoot cuttings). The results showed that maximum LAI (Leaf Area Index) (2.72), RGR (Relative Growth Rate) (0.062 g/g/day), LAR (Leaf Area Ratio) (168.55 cm^2/g) and NAR (Net Assimilation Rate) (0.00093 $g/cm^2/day$) were obtained from plants grown under 50% shading for 4 months, full light for 4 months, 50% shading for 2 months and full light for 2 months, respectively. The maximum plant biomass (90.92g) was produced by plants grown under 50% shading for 1 month and full light for 3 months, while maximum total flavonoids content (11.92%) was obtained from plants under 50% shading for 3 months and full light for 1 month, whereas maximum anthocyanine content from those grown under 50% shading for 1 month and full light for 3 months.

Clone 9 produced LAI, LAR, and anthocyanine content higher than clone 7, but RGR, NAR, total biomass, and total flavonoid content was lower than clone 7.

Key words: Lighting periods, growth, flavonoids, Gynura pseudochina , clones

PENDAHULUAN

Daun dewa telah digunakan untuk menurunkan kadar gula dalam darah, obat kulit, menyembuhkan migraine, hepatitis B, anti tumor atau anti kanker, penurun panas, menghilangkan bengkak-bengkak, membersihkan racun dan mengatasi peradangan pada jaringan tubuh (Gati dan Purnamaningsih, 1994; Suharmiati dan Maryani, 2003; Lemmens dan Bunyapraphatsara, 2003). Manfaat daun dewa dalam mengobati beberapa jenis penyakit tersebut disebabkan adanya kandungan bioaktif berupa senyawa flavonoid serta beberapa zat kimia lain seperti alkaloid, tanin, saponin, polifenol, minyak atsiri serta delapan asam fenolat (Ratnaningsih et al., 1985; Soetarno et al., 2000). Senyawa flavonoid telah dibuktikan dapat menghambat pertumbuhan sel-sel kanker pada manusia (Lamson dan Brignall, 2000; Katsube et al., 2003; Zhang et al., 2005).

Pemacuan produksi bioaktif tanaman pada kondisi lapang dapat dilakukan dengan meningkatkan biomasa tanaman melalui naungan dan periode pencahayaan. Pada beberapa penelitian sebelumnya telah diketahui bahwa pemberian naungan dapat mempengaruhi kandungan bioaktif tanaman, tetapi informasi tentang pengaruh periode pencahayaan belum dilaporkan. Pada tanaman kedelai, pigmentasi antosianin meningkat pada persentase naungan yang semakin tinggi (Lamuhuria et al., 2006), sedangkan pada beberapa klon daun dewa yang tumbuh pada kondisi 100% cahaya menghasilkan kadar antosianin yang tidak berbeda nyata (Ghulamahdi et al., 2006). Tanaman daun jinten (Urnemi et al., 2002), kadar kumarat dan fanilat tertinggi terdapat pada naungan 75%.

Di samping pengaruh cahaya terhadap peningkatan kadar bioaktif dalam tanaman, sumber bahan tanam juga ikut berpengaruh. Perbedaan klon daun dewa memungkinkan adanya perbedaan kandungan bioaktif.

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