

Zaitunita Apriliyanti R (220311100031). Pengaruh Pemberian Bahan Organik Dan Aplikasi Hormon Giberelin Terhadap Pertumbuhan Dan Pembungaan Pacar Air (*Impatiens balsamina* L.). Dibimbing oleh: Dr. Diana Nurus Sholehah, S.Farm., Apt., M.Si dan Fahmi Arief Rahman, S.P., M.Si

ABSTRAK

Pacar air (*Impatiens balsamina* L.) merupakan tanaman hias yang populer di Indonesia dan berasal dari Asia Selatan yang mengandung berbagai senyawa metabolit sekunder penting seperti flavonoid, tanin, saponin, kuinon (termasuk naftokuinon seperti lawsone), senyawa fenolik, dan antosianin. Penelitian ini bertujuan untuk mengevaluasi respons pertumbuhan dan hasil tanaman pacar air (*Impatiens balsamina*) terhadap variasi dosis bahan organik dan konsentrasi hormon giberelin. Menggunakan metode eksperimen lewat Rancangan Acak Kelompok (RAK) faktorial, faktor yang diuji meliputi dosis bahan organik (0, 10, 20 ton/ha) dan konsentrasi giberelin (0, 300, 600, 900 ppm) dengan uji lanjut DMRT 5%. Hasil evaluasi menunjukkan perlakuan tunggal bahan organik dosis 20 ton/ha (P2) paling optimal memacu diameter batang dan luas daun. Sementara itu, perlakuan tunggal giberelin konsentrasi 600 ppm (G2) menjadi paling optimal dalam meningkatkan komponen hasil, menghasilkan rata-rata 200,8 kuntum bunga dengan berat 217,7 g. Interaksi kedua perlakuan terlihat nyata pada jumlah dan luas daun di fase awal vegetatif, lalu menurun setelah 63 HST karena tanaman beralih ke fase generatif (*source-to-sink*). Namun, keterbatasan serapan hara P pada media alkalis menyebabkan perlakuan yang diuji tidak berpengaruh nyata terhadap tinggi tanaman, jumlah cabang, panjang akar, umur berbunga, serta berat basah dan kering tanaman. Penggunaan bahan organik 20 ton/ha dan giberelin 600 ppm mampu meningkatkan kualitas daun dan bunga pacar air, tetapi tetap membutuhkan tambahan pupuk makro seimbang untuk mengatasi masalah pH tanah yang tinggi.

Kata Kunci: Bahan Organik, Giberelin (GA3), Pacar Air, *Source-to-Sink*.

Zaitunita Apriliyanti R (220311100031). The Effect of Organic Matter Application and Gibberellin Hormone on the Growth and Flowering of Garden Balsam (*Impatiens balsamina* L.). Supervised by Dr. Diana Nurus Sholehah, S.Farm., Apt., M.Si. and Fahmi Arief Rahman, S.P., M.Si.

ABSTRACT

Garden balsam (*Impatiens balsamina* L.) is a popular ornamental plant in Indonesia that originates from South Asia. It contains various important secondary metabolites, including flavonoids, tannins, saponins, quinones (particularly naphthoquinones such as lawsone), phenolic compounds, and anthocyanins. This study aimed to evaluate the growth and yield responses of garden balsam to different rates of organic matter application and concentrations of gibberellin (GA₃). The design used in this study is a factorial Randomized Group Design consisting of 2 factors: organic matter rates (0, 10, and 20 t ha⁻¹) and gibberellin concentrations (0, 300, 600, and 900 ppm). Data were analyzed using Duncan's Multiple Range Test (DMRT) at the 5% significance level. The results showed that the single application of organic matter at 20 t ha⁻¹ (P₂) was the most effective treatment for promoting stem diameter and leaf area. Meanwhile, the single application of gibberellin at a concentration of 600 ppm (G₂) produced the best yield performance, resulting in an average of 200.8 flowers with a fresh flower weight of 217.7 g per plant. A significant interaction between organic matter and gibberellin treatments was observed in leaf number and leaf area during the early vegetative stage. However, this interaction declined after 63 days after planting (DAP) as the plants shifted from the vegetative to the reproductive stage due to the source-to-sink transition. Furthermore, limited phosphorus (P) availability under alkaline soil conditions reduced nutrient uptake, resulting in no significant effects of the treatments on plant height, number of branches, root length, flowering time, or plant fresh and dry weights. The combined application of 20 t ha⁻¹ organic matter and 600 ppm gibberellin improved the quality of leaves and flowers of garden balsam; however, additional balanced macronutrient fertilization is still required to overcome the constraints associated with high soil pH.

Keywords: Organic Matter, Gibberellin (GA₃), Garden Balsam, Source-to-Sink.