# Effect of organic fertilizers on growth and flowering indices of *Petunia hybrida* under deficit irrigation

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## Abstract

Organic fertilizers preserve food cycle, reduce pollution and remediation of soil physicochemical properties and stabilization of plants in soil. To investigate the effect of organic fertilizer (vermicompost, compost and manure) on physiological characteristics of *Petunia hybrida*, a factorial greenhouse experiment was conducted based on completely randomized design with three replications at Ferdowsi University of Mashhad. Treatments consisted of three irrigation levels (irrigation based on 100% of field capacity (FC), equivalent to 360 ml of water (D1), 50% of field capacity, equivalent to 180 ml water (D2), and 25% of field capacity, equivalent to 90 ml water (D3), in each 2-kg pot) and four fertilizer treatments (control, compost, vermicompost and manure). The measured morphophysiologic traits were plant height, number of lateral branches, number of leaves, number of flowers, volume of roots, dry weight of leaf, root, stem and flower, electrolyte leakage, stomatal conductance and photosynthetic pigments. Results showed that irrigation levels and fertilizer types were significant for all measured traits. The interaction of irrigation and fertilizer treatments showed that the highest amount of leaf dry weight, stem dry weight, plant height, number of flowers and stomatal conductance was obtained in the 100% FC and manure fertilizer. In 25% FC treatment, 10-flower weight was increased by 38, 29 and 61% in compost, manure and vermicompost, respectively, compared to control. Among the fertilizer treatments, the highest level of chlorophyll a was measured in control. However, the highest chlorophyll b, total chlorophyll and carotenoid content was observed in vermicompost treatment. Generally, manure and vermicompost had better effects in improving the performance and number of flowers of petunia under deficit irrigation.

**Keywords:** Petunia, Plant height, Photosynthetic pigments, Electrolyte leakage, Stomatal conductance.

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