The effect of soil fertilization and foliar spray of semperflorens begonia (*Begonia semperflorens*) by *Spirulina* cyanobacterium biomass

A. Jowkar[1*], K. Bashiri[1] and M.T. Golmakani[2]

(Received: 21 Nov. 2015 ; Accepted: 2 Oct. 2016)

Abstract

Semperflorens begonia (*Begonia semperflorens*) is an ornamental house-plant which for its optimal growth and development needs a proper nutrition. Currently, cyanobacteria are sought after by plant growers as a growth bio-stimulant. Spirulina (*Spirulina platensis*) is an important cyanobacterium which has a vast range of nutritional organic and inorganic substances. This green-blue algae could be a new option of bio-fertilizers for organic cultivation of plants, which merits further investigations in different plants. In this regard, a research with a completely randomized design and five replications was carried out in the greenhouse of the Department of Horticultural Science at Shiraz University, to increase the quality and yield of semperflorens begonia. Spirulina treatments were studied in two forms of soil fertilization and foliar spray (concentrations of 0, 500, 1000, 2000 and 4000 mg/L). Results showed that soil fertilization has greater effect on morphophysiological traits of begonia than foliar spray. Soil fertilization with 4000 mg/L spirulina was the best treatment and compared to the control, significantly increased the vegetative growth, phosphorus, potassium and chlorophyll content of leaves and visual quality of semperflorens begonia. Also, in the abovementioned treatment, the sugar content of leaves, petals' anthocyanin content and number of flowers were 3, 2 and 2 times higher than control treatment.

Keywords: Ornamental plants, Organic agriculture, Fertilization, Bio-fertilizer.

1. Dept. of Hort. Sci., College of Agric., Shiraz Univ., Shiraz, Iran.
2. Dept. of Food Sci., College of Agric., Shiraz Univ., Shiraz, Iran.
* Corresponding Author, Email: ajowkar@shirazu.ac.ir