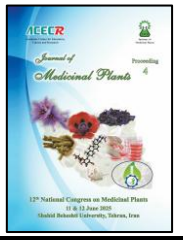
Institute of Medicinal Plants
National Research and Technology Network of Medicinal Plants

12th National Congress on Medicinal Plants

11 & 12 June 2025
Shahid Beheshti University, Tehran, Iran



Poster Presentation ID: 1455

Efficacy of Vital Power®, a biostimulant fertilizer, on collard greens (*Brassica oleracea* var. *viridis*)

Mehran Rezaei [1], Reza Panahi [1], Saba Hajheidari [2], Mohammad Taghi Heydari [2]

[1] *Department of Plant Production and Plant Protection, Institute of Agriculture, Iranian Research Organization for Science and Technology (IROST), Tehran, Iran*
[2] *Research and Development Department, Foroughe Dasht Company, Tehran, Iran*
E-mail: mrn.rezaei@gmail.com; rezaei@irost.ac.ir

ARTICLE INFO

Keywords:
Organic fertilizer
Amino acids
Kale
Yield
Brassica

ABSTRACT

Collard greens (*Brassica oleracea* var. *viridis*), a nutrient-dense leafy vegetable of the Brassicaceae family, possess significant medicinal properties due to their high concentration of bioactive compounds, including glucosinolates, phenolic acids, and ascorbigen, which exhibit antioxidant, anti-inflammatory, and chemopreventive activities [1,2]. To enhance crop yield, this study evaluated the effects of a single foliar application of Vital Power® (at 2L/1000L) on collard greens under controlled greenhouse conditions. This organic fertilizer contained free L-amino acids (12%), total nitrogen (N, 6%), phosphorus (P_2O_5, 6%), and water-soluble boron (B, 0.6%). Ten days after the applied treatment, growth parameters including leaf number, plant height (cm), leaf length (cm), leaf width (cm), shoot fresh weight (g), shoot dry weight (g), root fresh weight (g), and root dry weight (g) were measured. Ten replicates were considered for each parameter. The treated plants showed significantly greater values than controls across all measured parameters (t-test, $P<0.05$): leaf number (12.80±0.25 vs. 7.90±0.31), plant height (35.40±0.82 vs. 24.50±1.21 cm), leaf length (13.00±0.26 vs. 8.80±0.29 cm), leaf width (9.50±0.45 vs. 6.50±0.40 cm), shoot fresh weight (70.63±0.79 vs. 25.52±0.51 g), shoot dry weight (6.42±0.07 vs. 3.24±0.06 g), root fresh weight (3.01±0.17 vs. 1.58±0.09 g), and root dry weight (0.63±0.04 vs. 0.41±0.02 g). The results indicate that foliar application of Vital Power® significantly improves key growth parameters in collard greens, demonstrating its efficacy as a biostimulant for enhancing production of this medicinally valuable crop.

References

1. Steiner F. Zuffo A. M. Echer M. de M. Guimarães V. F. Collard green yield and nutritional quality with mineral and organic fertilization. *Semina: Ciências Agrárias*, 2019; 40(5Supl1), 2165–2178.
2. Antonious G. F. Glucosinolates in collard greens grown under three soil management practices. *Journal of Environmental Science and Health*, 2015; Part B, 50(5), 368-373.