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THE EFFECT OF FERTILIZATION REGIMES ON GROWTH AND CHEMICAL COMPOSITION OF *CICHORIUM SPINOSUM* PLANTS

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Abstract

In the current study, it was evaluated the effect of different fertilization regimes on growth and chemical composition of *Cichorium spinosum* plants. The experiment took place at the experimental field of University of Thessaly. Young seedlings after emergence were transplanted in 2 L plastic pots containing peat and perlite (1:1, v/v). Seven treatments were used which varied in the amounts of N:P:K namely 100:100:100, 200:100:100, 200:200:200, 300:100:100, 300:200:200, 300:300:300 ppm ratio of N:P:K, and the control treatment where no fertilizers were added. Each treatment included fifteen pots (n=15) and all the treatments received the same amount of nutrient solution (150 mL) per plastic plot. Harvest took place on 26th of April 2021 where several morphological traits were measured. Regarding the chemical analysis, it was evaluated the nutritional value of leaves and their content of sugars, organic acids and fatty acids. Based on the results, the treatments of 100:100:100, 300:200:200 and 300:300:300 recorded the largest number of leaves, while no significant differences were observed between the treatments in terms of the fresh weight of leaves. Regarding the chemical composition, there were identified three sugars, namely glucose, sucrose and fructose, whereas polyunsaturated fatty acids were the main category of fatty acids due to the high concentration of α -linolenic acid. Quinic acid was the major organic acid (highest concentrations observed at 300:100:100 treatment), followed by oxalic and malic acid. In conclusion, the growth and chemical composition of *Cichorium spinosum* can be significantly affected by the fertilization regime, while the application of tailor-made nutrient solution could result in improved yield and quality.

Keywords: *Wild edible plants, Cichorium spinosum, nutrient solution, chemical composition.*

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