



Graduate Management

University Self-Governing Campus

Faculty of agriculture

Engineering in medicinal plants, spices and soft drinks

**Thesis for master's degree in the field of engineering of medicinal plants,
spices and soft drinks**

:Title

**Determination of different levels of vermicompost
and zinc foliar application on quantitative and
qualitative characteristics of *Hibiscus sabdariffa***

Supervisor:

Dr. M. Dahmardeh

Dr. B. FAKHERI

Advisors:

Dr. E. Khmmari

By:

N. SHAHRAKI

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Abstract:

This study was conducted to investigate the separate, simultaneous and combined effects of different treatments such as different levels of vermicompost fertilizer and zinc foliar application on quantitative and qualitative characteristics of sour tea (*Hibiscus sabdariffa*) In the framework of a randomized complete block design with 3 frequency, in educational-research farm of Zabol University Agricultural Research Institute. The first factor was vermicompost, which included: no use of fertilizer, 5 tons per hectare, 10 tons per hectare and 15 tons per hectare of vermicompost. Foliar application of zinc as the second factor, and at three levels, including: no use of zinc, foliar application at the rate of three cc per thousand and six cc per thousand. Based on the results of analysis of variance, the effect of vermicompost and foliar application of zinc on plant height was not significant, but their interaction was significant at the level of 1% probability. Comparison of the average data shows that the highest plant height (187.49 cm) was obtained from the application of 15 tons per hectare of vermicompost with foliar application of 3 cc per thousand zinc elements. Also, the comparison of the average data shows that the highest stem diameter (19.52 mm) was obtained from the application of 5 tons per hectare of vermicompost fertilizer with foliar application of 3 cc per thousand zinc elements. The results of analysis of variance showed the effect of vermicompost fertilizer and its interaction with zinc foliar application on plant wet weight at the level of 1% probability, but the simple effect of foliar application on zinc was not significant. Also, the comparison of the average data shows that the highest wet weight of the plant (9448.5 kg / ha) was obtained from the application of 10 tons per hectare of vermicompost with foliar application of 6 cc per thousand elements of zinc. Also, the results of this study showed that the highest dry weight of the plant (1788 kg / ha) was obtained from the application of 15 tons per hectare of vermicompost fertilizer with foliar application of 6 cc per thousand zinc elements. Based on the results of analysis of variance, the effect of vermicompost, zinc foliar application and their interaction on wet weight of bollworm were not significant. However, the comparison of the average data shows that the highest wet weight of bolls was 5 tons per hectare of vermicompost fertilizer (480.56 kg / ha) and foliar application of 3 cc per thousand zinc elements (447.67 kg Per hectare) was obtained. On the other hand, comparing the mean of the data showed that the highest dry weight of boll (373 kg / ha) was obtained from the application of 5 tons per hectare of vermicompost with foliar application of 6 cc per thousand elements of zinc. The highest fresh weight of sepals (993 kg / ha) was obtained from the application of 5 tons per hectare of vermicompost fertilizer with foliar application of 3 cc per thousand zinc elements. Finally, the comparison of the average data shows that the highest dry weight of sepals (678 kg / ha) was obtained from the application of 15 tons per hectare of vermicompost with foliar application of 6 cc per thousand elements of zinc.

Key words: Sour tea, vermicompost fertilizer, zinc spraying, Zabol Agricultural