



INFLUENCE OF SPRAYING NANO-CURCUMIN AND NANO-ROSEMARINIC ACID ON GROWTH, FRESH HERB YIELD, CHEMICALS COMPOSITION AND POSTHARVEST CRITERIA OF FRENCH BASIL (*Ocimum basilicum* L. var. Grand Vert) PLANTS

Hammam K. A. and Shoala T.

To cite the article: Hammam K. A. and Shoala T. (2020), Influence of spraying Nano-curcumin and Nano-rosemarinic acid on growth, fresh herb yield, chemicals composition and postharvest criteria of French basil (*Ocimum basilicum* L. var. Grand Vert) plants, *Journal of Agricultural and Rural Research*, 5(1): 1-22.

Link to this article: <http://aiipub.com/journals/jarr-200609-010106/>

Article QR



Journal QR



INFLUENCE OF SPRAYING NANO-CURCUMIN AND NANO-ROSEMARINIC ACID ON GROWTH, FRESH HERB YIELD, CHEMICALS COMPOSITION AND POSTHARVEST CRITERIA OF FRENCH BASIL (*Ocimum basilicum* L. var. Grand Vert) PLANTS

¹Hamam K. A. and ² Shoala T.

¹Medicinal and Aromatic Plants Res., Depart. Hort. Res. Institute
A.R.C .Giza, Egypt

²College of biotechnology, Misr Univ. for Sci. & Technology
October 6 City, Giza, Egypt

ARTICLE INFO

Article Type: Research

Received: 02, June. 2020.

Accepted: 12, June. 2020.

Published: 12, June. 2020.

Keywords:

Nano-curcumin, nano-rosemarinic acid, French basil, Medicinal and Aromatic plants, Pre-harvest, Essential oil, GC analysis, Linalool and Eugenol.

ABSTRACT

The present work was carried out in El-Kanater El- Khairiya, Kalyobia Governorate Farm of Medicinal and Aromatic Plants, Res. Depart. and Postharvest & Handling Res., during two successive seasons 2017&2018. The aim of this work was to investigate the effects of Nano-curcumin (CU-NPs) and Nano-rosemarinic acid (RA- NPs) as foliar treatments, each at 30, 60 and 90 µg on pre -and post-harvest of French basil plants (*Ocimum basilicum* L var. Grand Vert); traits (growth, storage ability and marketing visual quality and chemical composition). The foliar application Nano-curcumin (CU-NPs) and Nano-rosemarinic acid (RA- NPs) showed positive effects on pre -and post-harvest plant traits. Regarding the effect of these compounds on pre-harvest characters, the obtained results revealed that there were significant increases in height, No. of branches/plant, fresh and dry weights of plants, total chlorophyll %, as well as essential oil % and yield/plant (ml) with increasing the level CU-NPs and RA-NPs. The highest values recorded on growth parameters and essential oil % was obtained with the foliar application of Nano-curcumin and Nano rosemarinic acid, each at 90 µg, in both seasons. The GC-analysis of essential oil indicated that there were thirteen identified components due to the application of both Nano-curcumin and Nano rosemarinic. The contents of linalool and eugenol were the major constituents and reached the highest values (51 and 25% respectively) in plants treated with 90 µg of Nano rosemarinic acid. The response of postharvest traits (storage ability and marketing visual quality and chemical composition) to the application of RA-NPs and CU-NPs, revealed that treating French basil plants with the high level (90 µg) resulted in less fresh weight loss (%), during the three weeks of storage period, than the control plants. The concentration chlorophyll in the cut foliage remained constant during the first week of storage, compared with control, but the storage periods combined with foliar application of RA-NPs and CU-NPs had a significant increase effect on the essential

oil percentage of the french basil plant. Moreover, decreased CO₂ and increased O₂ inside the packages. In addition, application of RA-NPs was more effective and gave the higher values than CU-NPs of French basil plants, except total microorganism CU PN_s was the best.



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).