شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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HANAA ALY

Agricultural and chemical studies on *Camelina sativa* L.

By

Omnia Gamal Ahmed Hefni
B.Sc. Agric. Sci. (Ornamental Horticulture), Fac. Agric., Cairo Univ., Egypt, 2010

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APPROVAL SHEET

AGRICULTURAL AND CHEMICAL STUDIES ON CAMELINA SATIVA L.

M.Sc.Thesis
In
Agric. Sci. (Ornamental Horticulture)

By

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Date: 26 /12/ 2021

SUPERVISION SHEET

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ABSTRACT

Two experiments (fertilization and sowing spacing were conducted during two successive seasons (2018/2019) and (2019/2020) at a research farm belonging to Heliopolis University and biology experiment at the National Research Centre. The fertilization experiment, the main plot was compost at the rate of (0, 6,8 and10 m^3/fed) and the sub-plot was NPK at the rate of (0,25,50,75 and 100% of the recommended doses). The objective of this experiment was to investigate the effect of compost, N-P-K and the interaction between them on the growth, yield and some chemical compounds of *Camelina sativa* L.. The Results revealed that, generally, all the morphological data correlated positively with the increment of NPK levels according to 1st and 2nd seasons comparing with control, the effect of compost revealed that compost levels (0, 6, 8 and 10 m^3 /fed.)

resulted in significant increase in all vegetative growth and yield, concerning the interaction between NPK and compost the results showed significant differences in both samples of both seasons. Increasing the NPK fertilizer application caused a gradual steady increase in the fixed oil % and yield in both seasons. Plants fertilized with compost at 10 m^3/fed. gave the highest significant fixed oil percentage (41.10 and 40.11%) and yield(225.39 and 207.29 L/fed.). The highest fixed oil percentages and yield (L /fed.) were recorded when the plants were treated with the highest level of NPK (100% NPK) and compost at 10 m^3/ fed. during both seasons, the mean values of fixed oil % were 54.4 and 45.2%, while the mean values of fixed oil yield were 435.74 and 445.16 L/fed. in the first and second seasons, respectively. It can be noticed that the oil is rich in unsaturated fatty acids (97.30 - 98.04 %) such as linoleic, α-linolenic. The maximum percentage of unsaturated fatty acids was obtained by 25% NPK + compost at 6 m^3.

Planting spacing experiment: Two successive seasons(2018/2019) and (2019/2020) with four sowing spaces (10, 15, 30 and 45cm). Planting at the distance (30cm) resulted in the highest oil percentage, while decreasing the distance to 10 cm gave the lowest oil percentage. Sowing plants at (45cm) resulted in the highest capsules number /plant, highest fresh and dry weights at the two respective seasons with significant differences between mean values in both seasons.

Biology experiment: Camelina oil showed promising gradual reduction capability near to BHT at all concentrations, oil was assessed for antiradical ability against many radicals including; DPPH radicals, superoxide radicals, NO radicals,cation radical as well as inhibition of lipidperoxide production.

Key words: *Camelina sativa* – NPK fertilizer- compost –sowing distance- antioxidant effect.

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DEDICATION

I dedicate this work to whom my Grateful appreciation is also to all of my husband Ammar, my children Lamar ,Lara, Mohamed , my precious sister Amani, my mother and brothers Mohamed, Ahmed and Youssef