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Effect of spraying with Nano-Fe oxide and Vitamin B3 (Niacin) on the Volatile oil characters and active compounds of *Ocimum basilicum* L. and *Aloe vera* L. plant

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Abstract--This study is conducted in a lath house in Department of Biology coll. of education for women, Tikrit University at the season 2021 on *Ocimum basilicum* L. and *Aloe vera* L. plants Two pot (30 cm Diameter and 6.5 Kg in weight)are used in these factorial experiments with Two factors, first factor is spraying with Nano-Fe oxide with 4 levels (F0 without spraying Nano-Fe oxide ,F1 spraying with 40 mg.L⁻¹ of Nano-Fe oxide ,F2 spraying with 80 mg.L⁻¹ Nano-Fe oxide,F3 spraying with 120 mg. L⁻¹ Nano-Fe oxide). The second factor is spraying with vitamin B3 (Niacin) with 3 levels (N0 without spraying with VB3 , N1 spraying with 50 mg. L⁻¹ of VB3, N2 spraying with 100 mg. L⁻¹ of VB3) each experiment has conducted on plant of these two plants.

Keywords--spraying, nano-Fe oxide, vitamin B3, volatile oil.

Introduction

These two experiments also designed with RCBD (Randomized Complete Block Design) and these 12 treatments of each experiment were replicated 3 times, and Duncun's Multiple Range Test at the probability 5% is used and the results are followed:

***Ocimum* plant**

Spraying with Nano-Fe oxide, Niacin and their interaction causes a significant increase in all physiological characters of a volatile oil especially in the treatment F3N2 (which sprayed with 120 mg. L⁻¹ Nano-Fe oxide and 100 mg. L⁻¹ of Niacin).

Oil quantity (9.290 mg. 100 gm⁻¹ fresh matter) Refractive Index (1.890), specific gravity (1.691), oil density (0.973 mg. cm³) and Optical Rotation (0.895) compared with a control plants which gave a lowest values of these characters (6.828mg .100gm⁻¹ fresh matter , 1.475, 1.423, 0.680 mg. cm³and 0.497) of these volatile oil physical characters Respectively.

Spraying plants with Nano -Fe oxide and VB3(Niacin)and their interaction gave a highest concentration of Active compounds, plants sprayed with 120 mg .L⁻¹ of Nano -Fe oxide and 100 mg .L⁻¹ VB3 gave a highest concentration of Talic acid (134.449 mg. gm⁻¹), sufron (250.712 mg. gm⁻¹), Routin (193.712 mg. gm⁻¹), Gallic acid (338.566 mg. gm⁻¹), Agenin (139.919 mg. gm⁻¹) where's the plant sprayed with 80 mg .L⁻¹ of Nano -Fe oxide and 100 mg .L⁻¹ VB3 gave a highest concentration of Kaempferol (279.829 mg. gm⁻¹) . These for a flavonoid compounds. Alcolloids compounds in Ocimum plant seems to affect by spraying of these Active substances (Nano-Fe oxide and VB3 (Niacin)). The plants sprayed with 40 mg .L⁻¹ of Nano -Fe oxide and 100 mg .L⁻¹ VB3)gave a highest concentration of Korestine (Alcolloide compound) (267.451 mg. gm⁻¹) and Caffeine (243.815 mg. gm⁻¹) .The plants spraying with 40 mg .L⁻¹ of Nano -Fe oxide and 100 mg .L⁻¹ of VB3 gave a highest concentration of crocin (250 .476 mg. gm⁻¹).

Aloe vera L. plant

These treatments has affected the active compounds in *Aloe vera* L. plants. Also the flavonoids compounds in this plant are as followed: Aloe vera plants sprayed with 120mg .L⁻¹ of Nano -Fe oxide and 100 mg .L⁻¹ of V B3 (Niacin) gave a highest concentration of Kaempferol compound (2.504 mg. gm⁻¹), Gallic acid (9.416 mg. gm⁻¹), Agenin (20.901 mg. gm⁻¹), Talic acid (98.717 mg. gm⁻¹), Sufron (9.810 mg. gm⁻¹). The Aloe plants sprayed with VB3 only gave a highest Routin concentration (58.529 mg. gm⁻¹) and the Aloe plants sprayed with 80 mg. L⁻¹ of Nano-Fe oxide and 100 mg. L⁻¹ VB3 (Niacin) gave a highest Dimethoxybenzyl alcohol (12.99 mg. gm⁻¹). Compared with a control plants and other treatments. Alcolloids compounds in *Aloe vera* L. also affected by substances (Nano-Fe oxide and VB3). Aloe plants sprayed with 80 mg .L⁻¹ of Nano -Fe oxide only gave a highest concentration of Korestine compound (47.426 mg. gm⁻¹). Aloe plants sprayed with VB3 (Niacin) only (100 mg. L⁻¹) gave a highest concentration of crocin (76.233 mg. gm⁻¹). A plant sprayed with 80 mg .L⁻¹ Nano -Fe oxide and 100 mg .L⁻¹ of VB3 gave a highest concentration of caffeine compound (91.488 mg. gm⁻¹) .

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