

## **Abstract**

In order to study effect of compost and fertilizers on some physiological traits, yield and yield components of *Carum copticum* with plant residues and without plant residues as split plots in a block design The complete randomization, with four replications, was performed at the research field of Agriculture Jihad, located at Adimi. Treatments included first factor different sources of fertilizer at 3 levels, control (without any fertilizer), compost (50 ton/ha) and mixed (half compost) + (half recommended fertilizer), and the second factor plant debris at 2 levels (control (no plant residue) and (with plant residue). In this experiment, quantitative and qualitative characteristics including: shoot weight, plant seed weight, plant height, number of umbrellas, total seed weight, seed essential oil percentage, protein content, photosynthetic pigments, thousand seed weight, essential oil yield were evaluated. Based on the results, the interaction between plant residue consumption and fertilizer types was significant only for the following traits: shoot weight, plant seed weight, plant height, number of umbrellas, total seed weight, essential oil percentage, thousand seed weight and essential oil yield. The highest shoot weight (06/8 g/plant), plant seed weight (238/3 gr/plant), plant height (06/100 cm), number of umbrellas (145/28), total yield (25/2117 kg/ha), essential oil percentage (075/4 %), thousand seed weight (955/0 gr), and essential oil yield (143/93 kg/ha) of *Carum copticum* were obtained from the treatment of plant residues with compost + NPK fertilizer. Finally, the best fertilizer treatment combined application treatment of plant residues with the compost + NPK fertilizer treatment is recommended.

**Keywords:** Compost, Plant residue, Herbal plant, *Carum copticum*.



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**Effect of management of plant residue and type of  
fertilizer on the quantity and quality of Ajwain (*Carum  
copticum L.*)**

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