Effect of two oat cultivars and different spraying concentrations of some amino acids on the yield characteristic and their components

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Abstract:

A field experiment was conducted during the 2021-2022 season in the fields of the Agricultural Research Station affiliated to the College of Agriculture - University of Basra, 30 km north of the center of Basra provaince, with the aim of studying the effect of spraying levels of amino acids on yield traits and its components of two cultivars of oats (*Avena sativa* L.).Two cultivars of oats (Shifaa and Ganzania) and six treatments were studied for spraying amino acids (50 mg L^{-1} L-tryptophan, 100 mg L^{-1} of L-tryptophan, 50 mg L^{-1} of L-Glysine, and 100 mg L^{-1} of L- Glysine, 50 mg L^{-1} of L-Lysine, and 100 mg L^{-1} of L-Lysine) with control treatment without spraying.The experiment was applied using the randomized complete block design (R.C.B.D), with split plot arrangement, with three replicates .The results showed that the cultivars differed significantly among themselves in most of the traits of the study. The cultivar Shifa was excelled in the number of panicles, the weight of 1000 grains, and the grain yield, with an increase of 8.85%, 31.54%, and 4.89%, respectively, compared with the cultivar Ganzania. As for the treatments of spraying amino acids, they showed a significantly excelled when spraying tryptophan at a concentration of 50 mg L^{-1}, and gave the highest mean of the number of panicles, the number of grain in the sepals, and the grain yield. We conclude from this study that amino acids play an important role in plant growth. Spraying tryptophan at a concentration of 50 mg L^{-1} with Shifa cultivar gave a significant increase in the number of panicles.

Keywords: oats, cultivars, amino acids

Introduction:

Oat (*Avena sativa* L.) is a winter grain crop belonging to Poaceae family and its importance comes through its multiple uses.As oats are used in the human diet and are used in the manufacture of bread and pasta because they contain a high percentage of vitamins and unsaturated fatty acids (1). In addition, grains contain a high percentage of antioxidants, which many studies have confirmed their beneficial effect on cardiovascular diseases, diabetes, and obesity compared to other grains (7, 8). Oats is also considered one of the important crops globally, but in Iraq it is cultivated in a very limited manner and its production rate is still low compared to global production. Choosing the right cultivar is the basis for successful cultivation and is equally important compared to other production factors such as the use of fertilizers. (3) Found in their field study that was coundected during two seasons in Iraq to compare three cltivars of oats (Shifa, Hamel and Pimula) that the cultivar Shifa excelled in grain yield. (5) Also found that when cultivating two cultivars of oats (Shifaa and Ganzania), the cultivar had excelled in most components of yield, grain yield, and protein percentage. (1) Showed significant differences between the cultivars in yield traits when cultivating four oat cultivars, where the cultivar gave a higher mean recovery of number of peduncles and the weight of 1,000 grains. (4) During their study in Iraq to compare three cultivars of oats (Genzania, Hamel, and Carloup) concluded that Shifa had superiority in number of grains in the panicles , the weight of one thousand