



## EFFECT OF FOLIAR APPLIED AMINO ACIDS ON GROWTH CHARACTERISTICS OF OAT (*AVENA SATIVA* L.)

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### SUMMARY

The progressive study on oat (*Avena sativa* L.) transpired during the crop season of 2021–2022 at the Agricultural Research Station, College of Agriculture, University of Basrah, Iraq. The study aimed to determine the effects of amino acids foliar application on two oat cultivars. Experimenting with a randomized complete block design included a split-plot arrangement. Two oat cultivars (Shafa and Genzania) grown and placed in secondary plates received seven treatments of three different amino acids (Control - No amino acid, 50 and 100 mg L<sup>-1</sup> of L-Tryptophan, 50 and 100 mg L<sup>-1</sup> of L-Glycine, and 50 and 100 mg L<sup>-1</sup> of L-Lysine). The results revealed that oat cultivars and amino acid treatments differed significantly for most of the studied traits. The amino acid foliar application treatment of L-Tryptophan at the rate of 50 mg L<sup>-1</sup> showed significant superiority, which boosted and provided the highest rate of flag leaf area, chlorophyll content, crop growth rate, and green fodder yield. However, the cultivar Shafa exhibited superiority for flag leaf area, chlorophyll content, and the green and dry fodder yield, with increased values of 7.15 cm<sup>2</sup>, 8.11 µg cm<sup>-3</sup>, and 8.01% and 5.61% t ha<sup>-1</sup>, respectively.

**Keywords:** Oats (*Avena sativa* L.), amino acids, L-Tryptophan, L-Glycine, L-Lysine, oat growth traits

**Key findings:** The oat cultivars and amino acid treatments differed significantly for most growth traits. Oat cultivar 'Shafa' and foliar application of amino acid L-Tryptophan (50 mg L<sup>-1</sup>) showed significant superiority for growth traits.

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### INTRODUCTION

Oat is a vital winter cereal crop that belongs to the Poaceae family. Its importance comes through its multiple uses in the human diet due to its high vitamins and protein percent and the manufacture of bread and pasta, and unsaturated fatty acids, in addition to high antioxidants compared with other cereals (Duda *et al.*, 2021; Dvořáček *et al.*, 2021). Oat

is very limited in its cultivation and production rate compared with other cereals, and the best cultivars resulted from an assessment based on their performance through successful cultivation (Alrubaiee *et al.*, 2018, 2019; Al-Yasari, 2022). Past studies comparing three cultivars of oats (Genzania, Shafa, and Carloup) showed the superiority of the oat cultivar through plant stature and crop growth rate (Al-Freeh *et al.*, 2019). Also, the findings

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