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# Effect of Banana Peel Extract or Tryptophan on Growth, Yield and Some Biochemical Aspects of Quinoa Plants under Water Deficit

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**Abstract :** Egypt presents a distinctive example of the drought problem faced in some arid and semi-arid regions. Water deficiency which often linked with other major abiotic stress such heat stress, salinity stress, etc. so, it is considered as one of the main factors responsible for crop productivity reduction. Thus, water conserving is becoming a crucial consideration for agriculture. In order to conserving water two field experiments were conducted during two successive seasons at the experimental Station of National Research Centre, Nubaria district, El-Behera Governorate-Egypt to compare the physiological role of tryptophan with 50 &75 mg/l, and banana peel extract at 500 and 1000 mg/l concentrations in improving growth, antioxidant defense system and productivity of quinoa plant under skipping irrigation. Meanwhile, Exogenous application of banana extract and tryptophan led to marked increases in growth characters (plant height, shoot, root fresh and dry weight) concomitantly with an increase in the levels of IAA, photosynthetic pigments, phenol, free amino acid contents and yield components, as compared with the control with skipping irrigation. Regarding to antioxidant activity different treatments increased antioxidant enzymes activities of quinoa plant. Moreover, treatments increased seed yield and its components, also a marked increase in nutritional values of the yielded seed (carbohydrate contents, protein%, flavonoids and antioxidant activity). It is noticed that banana extract especially at 500 mg/l was more pronounced than tryptophan in increasing most of the tested parameters of quinoa plant.
**Keywords:** Banana peel extract, Growth, Quinoa, Sandy soil, Tryptophan, Yield.



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