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Effect of Orange Peel Extract or Ascorbic Acid on Growth, Yield and Some Biochemical Aspects of Quinoa Plants under Water Deficit

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Abstract : A field experiment was conducted to evaluate the potential of foliar treatment of orange extract (600 & 1200 mg/l) and ascorbic acid (200 & 400mg/l) on growth characters, photosynthetic pigments, seed yield quantity and quality and some biochemical aspects of quinoa plant under drought stress conditions (skipping irrigation). Exogenous application of orange extract and ascorbic acid 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 (chlorophyll a, chlorophyll b, and carotenoids), phenol, free amino acid contents, total carbohydrates and yield components, as compared with the control with skipping irrigation. All treatments increased seed yield and its components, also a marked increase in nutritional values of the yielded seed (carbohydrate contents, protein%, oil%, flavonoids and antioxidant activity). It is noticed that orange extract was more pronounced than ascorbic acid in increasing most of the tested parameters of quinoa plant. Moreover, orange extract at 600 mg/l was the most effective treatment.
Keywords: Ascorbic Acid, Growth, Orange peel extract, Quinoa, Sandy soil, Yield.

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