Agrotechnology 2018, Volume 7
DOI: 10.4172/2168-9881-C2-034

Effect of salt stress on the growth and development of saffron in eastern Morocco

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Saffron (*Crocus sativus* L.) is the most expensive spice in the world. It is cultivated in Morocco for centuries and used for culinaries, medicinals and cosmetics. This work focuses on the study of salt stress effect on several morpho-physiological and biochemicals parameters on saffron. An experiment was conducted over a 4-year saffron planted in open fields in the Experimental Station of the Faculty of Sciences of Oujda. Experimental treatment includes four concentrations of NaCl (0, 1, 3 and 5 gl^{-1}). Comparing obtained results, an increasing salt stress level influenced slightly different morphological parameters of saffron such as : Decrease in number, length and area of leaves; reduction in diameter of the replacement corms. The effect of NaCl resulted in a decrease of chlorophyll content and the quantum yield of PSII, an accumulation of proline, soluble sugars and total phenols. These biochemical compounds acted to help the saffron against salt stress keeping the relative water content (WRC) and malondialdehyde (MAD) to a level comparable to the control. The results showed no difference on stigmas yield along the range of salt treatment. The results showed that the salinity 1 g/l NaCl had a positive effect on the different growth parameters. The results of the present study revealed a morpho-physiological adaptation traits of saffron and may be valuable for eastern Morocco with increasing salt stress concerns.

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