

عنوان مقاله:

Effect of foliar application of putrescine on free proline, soluble and insoluble carbohydrates in spring safflower (*Carthamus tinctorius* L.) under water deficit

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خلاصه مقاله:

Water deficit is the most common environmental stress factor that is effective on plant growth and development. Polyamines are as growth regulator in plants and increased their tolerance to abiotic stresses such as drought. In this research the effect of foliar application of putrescine (40 and 60 μM) on shoot and root soluble and insoluble sugars and leaf proline contents in safflower plants under different levels of water supply (100% and 40% field capacity) was studied as factorial arrangement based on complete randomized block design with three replications. The effects of water deficit and putrescine on proline content in leaf and soluble sugars content in shoot and root were significant. Shoot soluble sugars and leaf proline increased under drought stress, but insoluble sugars decreased. Proline content in leaf and soluble sugars in shoot and root significantly decreased by application of 40 and 60 μM putrescine under water deficit. Putrescine as osmolyte and reactive oxygen species scavenger reduced production and accumulation of compatible osmolytes. In non-stressed plants, effects of putrescine treatment on soluble sugars content in shoot and proline content in leaf were different related to concentrations. Insoluble sugars increased with both concentration of putrescine in shoot and decreased in root. Putrescine application could enhance resistance of safflower to drought .without increasing osmolytes biosynthesis

کلمات کلیدی:

Drought stress, osmolytes, Putrescine, Safflower

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