

عنوان مقاله:

The effect of some probiotic bacteria in induction of drought tolerance in cucumber plants

محل انتشار:

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خلاصه مقاله:

Water deficit is one of the limiting factors of plant productions in arid and semi-arid areas. Many adaptive strategies such as accumulation of osmotic adjustments, phenolic compounds and antioxidant enzymes activity have been developed in plants for dealing with drought stress. The use of microorganisms, including probiotic bacteria, is a type of soil management that is effective in reducing the effects of stress. This experiment aimed to determine the effects of some probiotic bacterial strains on proline, sugar, total phenolic compounds (TPC), phenylalanine ammonia lyase (PAL), photosynthesis pigments and antioxidant activities of cucumber plants under drought stress. A completely randomized design was applied with a factorial arrangement of two factors: irrigation levels and bacteria strains with three replications. The results showed that proline, sugar, TPC, PAL and enzymes activity in control and inoculated plants were increased by increasing drought stresses. By contrast photosynthesis pigments significantly decreased under stress. The use of bacterial strains alleviate the harmful effect of stresses by an accumulation of proline, TPC, sugar, PAL activity and enzyme activity. The results also showed that inoculated plants had higher antioxidant activity compared to control plants under drought. It was found that the use of probiotic bacteria is an effective strategy to enhanced drought stress tolerance in plants.

کلمات کلیدی:

Cucumber, Drought stress, Enzymes activity, Probiotic bacteria, Prolin

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