

عنوان مقاله:

Evaluation of Gene Expression Level of Limonene and Flavone Synthase and Essential Oil Composition under Different Water Conditions in Cumin

محل انتشار:

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خلاصه مقاله:

Cumin, *Cuminum cyminum* L., is the king of spices with a plethora of natural compounds with pharmacological features. Drought stress is a well-known factor that influences the production of some metabolites. We studied the impact of drought stress on gene expression and metabolite content in flower and leaf tissue organs of two ecotypes, Taybad and Ardakan populations. Plants were imposed into three water level conditions, control, moderate, and severe water deficit. Concerning the results, the expression of Limonene synthase in flower organ of the Ardakan genotype increased ۲.۲ times under ۵۰% of field capacity, whereas, the expression of Flavone synthase in leaf tissue of the Ardakan ecotype, was the highest in this level of stress. Moreover, the majority of detected terpenoids were β -Acoradiene and γ -Terpinene in leaf and flower organs, respectively. Altogether, the monoterpenes content was decreased in both ecotypes, but sesquiterpenes increased only in the Ardakan population. Knowing the expression of key genes involved in the pathway of major metabolites in cumin under water stress conditions is important in the pharmaceutical industry and molecular researches.

کلمات کلیدی:

Cuminum cyminum L, Drought stress, Flavone synthase, Limonene synthase, Sesquiterpenes

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