

عنوان مقاله:

Influence of water stress on morpho-physiological and phytochemical traits in *Thymus daenensis*

محل انتشار:

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خلاصه مقاله:

Thymus daenensis is a medicinal plant endemic to semi-arid regions of Iran. A field experiment using a randomized complete block design with four replications was conducted to evaluate the effect of 20, 50 and 80% soil water depletion on morpho-physiological traits, essential oil content and composition and water use efficiency of *T. daenensis* during 2010-2011. Water stress reduced growth, herbage production, chlorophyll and carotenoid content, while increased proline, K⁺, essential oil content and irrigation water use efficiency based on essential oil yield (IWUE_{eso}). Thymol was the highest essential oil composition (63.3-73.5%) followed by carvacrol (3.6-16.0%), p-cymene (3.8-7.4%), γ-terpinene (3.3-4.7%), β-caryophyllene (2.8-4.0%) and borneol (1.4-3.4%), respectively. Thymol, p-cymene and γ-terpinene were increased, while the other compositions decreased under water stress. It is concluded that irrigation of *T. daenensis* based on 50% water depletion should be an appropriate choice for first growing season and 80% water depletion for the second growing season in semi-arid climatic conditions.

کلمات کلیدی:

Thymus daenensis, Water deficit, growth, Essential oil

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