عنوان مقاله:

Effects of water stress on growth parameters and forage quality of globe artichoke (Cynara cardunculus var. scolymus L.)

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خلاصه مقاله:

Cynara cardunculus var. scolymus L. is a herbaceous perennial plant that could be drought tolerant once established after the first year. To evaluate the effects of water stress on growth parametersand forage quality of this plant, a field experiment was conducted using a randomized complete block design with three replications in Isfahan, Iran during 2013-2015. Treatments were irrigation at 20 % (non-stress), 50 % (moderate stress) and 80 % (severe stress) depletion of the soil available water. Plant fresh weight (FW), plant dry weight (DW) and some forage quality characteristics such as crude protein (CP), crude fat (CF), water-soluble carbohydrates (WSC), neutral detergent fiber (NDF), acid detergent fiber (ADF), dry matter digestibility (DMD), total tannins (TT) and ash content were determined at the heading stage. Results indicated that growth and forage quality were significantly affected by water stress. The highest rates of FW, DW, NDF, ADF, CF and ash contents were recorded at non-stress conditions which were decreased over increasing stress severity by 40.67, 51.71, 6.54, 18.23, 8.83 and 21.81 %, respectively, while the highest rates of CP, DMD, WSC, and TT contents were observed at the severe water stress conditions. Generally, although water stress decreased forage yield, it had a positive role in qualitative characteristics of Cynara forage due to the increase in CP, DMD and WSC along with the decrease in NDF, ADF and ash content.

کلمات کلیدی:

Cynara, Crude Protein, Dry matter digestibility, Irrigation regimes, Total tannin