

Effect of Soil Fertilizing Methods on Some Forage Quality and Yield Characteristics of Globe Artichoke (*Cynara scolymus* L.) Under Greenhouse Conditions

E. Fateh^{1*}, A. Rahimi², H. Karimmojeni³, and R. Amini⁴

1*. **Corresponding Author:** Assistant professor of Crop Ecology at Shahid Chamran University, Ahvaz, Iran, (Esfandiarf @ gmail.com)

2. Department of Agronomy and Plant Breeding, Agricultural College, Vali-e-Asr University of Rafsanjan, Iran

3. Department of Agronomy and Plant Breeding, College of Agriculture Isfahan University of Technology, Isfahan, Iran

4. Department of Agronomy and Plant Breeding, College of Agriculture, University of Tabriz, Tabriz, Iran

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Abstract

To study the effect of organic and chemical fertilizers on forage yield, quality and growth characteristics in globe artichoke (*Cynara scolymus* L.) a glasshouse experiment was conducted using a randomized completed block design (RCBD) with three replications at the College of Agronomy and Animal Sciences, University of Tehran in 2007. In this study, the effects of chemical fertilizer including N, P and K with and without Urea foliar application for N, organic fertilizer including cattle manure with *Pseudomonas florescence* bacteria, combined application of cattle manure and chemical fertilizer as intermediate fertilization were investigated. The results showed the significant effects of applied treatments on measured parameters. Fertilizing treatments produced significantly higher leaf dry matter, forage quality traits including crude protein (CP), water-soluble carbohydrates (WSC), and Acid Detergent Fiber (ADF) and leaf P contents than control. Leaf dry matter in chemical method without Urea foliar application, chemical method with Urea foliar application, intermediate and organic application was significantly higher, 66.6, 51.5, 57.7 and 33.3 percent respectively, than control. Combined application of cattle manure and chemical fertilizer were more effective than chemical fertilizer on quality trait and the yield of Globe Artichoke (*Cynara scolymus* L.). The effect of *Pseudomonas florescence* bacteria on the majority of above mentioned traits was significant. Thus, it could be used as a complementary fertilizer with manure and chemical fertilizer in sustainable and organic agricultural practices. Urea foliar application increased crude protein (CP) and decreased ADF, implying that Urea foliar application could be used to increase forage quality.

Keywords: Artichoke (*Cynara scolymus* L.), Forage yield, Quality traits, Chemical fertilizer, Combined chemical and organic fertilizer, Organic fertilizer, *Pseudomonas florescence* bacteria, Foliar application