



Abstract

Proper nutrition of plant is one of the principles of access to stable agriculture and recognition of fertilizers, which are compatible with nature and suitable for plant, can have favorable effects on quantitative and qualitative features of plant. In order to investigate the effects of organic, chemical, and nano-biofertilizers on quantitative and qualitative features of millet forage varieties, an experiment was done in form of fragment terrace, in a randomized complete block design with 3 repetitions in agricultural research institute of University of Zabol located in Zahak province (Chahnime). The main factor includes two kinds of ordinary millet (Pishahang and Sistan) and the subsidiary factor includes livestock fertilizer (20 tons per hectare), vermicompost (10 tons per hectare), chemical fertilizer (100 kg triple superphosphate fertilizer, 150 kg potassium sulfate, and 150 kg urea fertilizer per hectare), nano-biofertilizer (2 kg per hectare), livestock fertilizer (20 tons per hectare) + nano-biofertilizer (2 kg per hectare), vermicompost (10 tons per hectare) + nano-biofertilizer (2 kg per hectare), and 50% livestock fertilizers + 50% vermicompost + nano-biofertilizer. We studied some characteristics which include: dry forage yield, amount of leaf chlorophyll, height, dry matter digestively, acid detergent fiber, neutral detergent fiber, crude protein, soluble in water and ashes carbohydrates. The results of this study showed that influence of organic fertilizers accompanied by nano-biofertilizer was effective on most of measured characteristics. The most amount of leaf chlorophyll, dry matter digestively, and soluble in water and ashes carbohydrates achieved from treatment of 50% livestock fertilizers + 50% vermicompost + nano-biofertilizer. The most amount of dry forage yield, height, and crude protein observed in chemical fertilizer treatment which was at the same level with combined treatments of organic fertilizer + nano-biofertilizer. The less amount of acid detergent fiber, neutral detergent fiber was related to chemical fertilizer treatment which was at the same level with combined treatments of organic fertilizer + nano-biofertilizer. Also was observed that the amount of ADF and NDF – which high percentage of them cause decrease of forage quality- in Sistan type was more than Pishahang type and Pishahang type was more in other characteristics, then we concluded that Pishahang type is more appropriate in quantitative and qualitative yield. The results of this experiment showed that in ordinary millet organic fertilizers and nano-biofertilizers lonely cannot be an alternative for chemical fertilizers, but can use them in a combined form and as an alternative for chemical fertilizers and this is useful for environmental pollution reduction and achievement of stable agriculture.

Key words: Organic manure, Chemical fertilizer, Nano-biofertilizer, Millet, Forage quality



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**The Thesis Submitted for the Degree of Master of
Science
(In the field of Agronomy)**

Effects of organic, chemical and nano-biological fertilizers
on quantitative and qualitative characteristics of millet
(*Panicum miliaceum*) varieties

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December 2016