

Abstract

Application of organic fertilizers and nano fertilizers especially plant growth promoting rhizobacteria (PGPR) is one of the most important strategies for plant nutrition compared to chemical fertilizers, especially in sustainable management of agroecosystems. In order to study the effects of application of biofertilizers (Azetobarvar1 and Barvar2), manure fertilizer and nano fertilizers (Iron and Potassium) on qualitative and quantitative characteristics of forage sorghum (*Speedfeed hybrid*), an experiment was conducted in greenhouse of college of agriculture, University of Zabol, Iran a factorial arrangement with completely randomized block design with three replicates. The traits were consist of manure fertilizer in two application levels and not application, biofertilizer in four levels (control, Azetobarvar1, Barvar2, Azetobarvar1 + Barvar2) and nano fertilizers in four levels (control, nano Iron, nano potassium, nano Iron+ nano potassium). Experimental factors were done soil application in 96 pot. Result indicated that all characteristics had significant effects of experimental factors. Means comparisons showed that the maximum of high plant, space of internodes and number of leaves were recorded for the treatments of manure fertilizer with integrated nano fertilizer (nano Fe+ nano K). root dry weight (rdw) and root wet weight (rww) were positively affected by nano fertilizer, Highest rdw and rww were obtained when an nano Fe was applied along with nano K. The results from total dry weight, total wet weight, stem dry weight and stem wet weight showed the positive effect of integrated fertilizer. the highest weights were observed by manure fertilizer with integrated biofertilizers (Azetobarvar1 + Barvar2). Also the highest leaf chlorophyll a (1.59mg/gr), chlorophyll b (5.31), carotenoid content (2.24) and carbohydrate (3/07) were observed by integrated biofertilizer (Azetobarvar1 + Barvar2) with integrated nano fertilizer (nano Fe+ nano K). The results showed that total integrated fertilizers significant effect at 1 percent on plant nutrient concentration had the highest nutrient uptake in soil containing manure fertilizer with integrated biofertilizers (Azetobarvar1 + Barvar2) took place. In general, it seems that application of integrated fertilizers by increasing nutrient uptake, can improve morphological and agronomic characteristics of sorghum and can be useful for goals sustainable agriculture.

Keywords: manure fertilizer, sorghum, nano fertilizer, biofertilizer



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