عنوان مقاله:

Effects of Chemical and Biological Fertilizers on Growth, Yield and Essential Oil of Salvia officinalis

محل انتشار:

مجله گیاهان دارویی و محصولات فرعی, دوره 4, شماره 1 (سال: 1394)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

This experiment was conducted in ۲۰۱۲ at the research field of Alborz Research Station, Research Institute of Forests and Rangelands, Karaj, Iran, to study the effect of chemical and biological fertilizers on Sage (Salvia officinalis L.) and replacing biofertilizers instead of high doses of chemical fertilizers. The experiment was conducted in factorial in the form of a randomized complete block design with three replications and two factors: chemical nitrogen and phosphorus fertilizers in four levels (N۰P۰, N۰P۱۵۰, N۳۰۰P۰ and N۳۰۰P۱۵۰) and biological fertilizers in four levels (non inoculated control, mycorrhizal inoculation with Glomus mosseae (T.H. Nicolson & Gerd.) Gerd. & Trappe + Glomus intraradices N.C. Schenck & G.S. Sm., bacterial inoculation with Pseudomonas fluorescens, and dual inoculation with G. mosseae +G. intraradices + P. fluorescens). The measured traits included: plant height, the number of tillers, leaf area, leaf yield, shoot yield, root weight, essential oil percentage and essential oil yield. Results indicated the significant effect of chemical fertilizer on all measured traits except for the number of tillers. Biofertilizer application had also significant effect on all measured traits except for essential oil percentage. The interaction of the two factors had only a significant effect on leaf area and leaf yield. Mean comparison showed that the highest essential oil yield (۳۷.۰۲ kg/ha) was achieved in N۰P۱۵۰×Pseudomonas which was significantly the same as N۰P۱۵۰×mycorrhizal inoculation and N۰P۱۵۰×dual inoculation with mycorrhizae + Pseudomonas. Generally, results of this experiment indicated that it is possible to replace biofertilizers instead of high doses of chemical fertilizers in order to reduce the need for chemical fertilizers and prevent the associated problems.

کلمات کلیدی:

mycorrhiza, nitrogen, Phosphorus, Pseudomonas, Sage