EFFECT OF APPLYING BIOFERTILIZER IN COMBINATION WITH SOME ORGANIC OR MINERAL ONES ON GROWTH AND CHEMICAL CONSTITUENTS OF MARJORAM "ORIGANUM MAJORANA L.," PLANTS

*Essam G. Somida, **Sawsan, A. Saif El-Yazal and **Dalia M. El-Sowfy
* Dep. of Hort., Ministry of Education Fayoum, Egypt
** Dep. of Soil and water, Fac. of Agric., Fayoum Univ., Egypt

ABSTRACT

A field experiment was carried out during two successive seasons of 2005/2006 and 2006/2007 to study the effect of applying biofertilizer (active dry yeast) as foliar spray at rates 0, 1, 2 and 3 g/L, alone or with the recommended doses of "NPK" as mineral fertilizers at the rates of (400 Kg/fed ammonium sulphate + 200 Kg/fed calcium super-phosphate+ 100kg/fed. potassium sulphate) or three forms of organic manure (farmyard "FYM"; poultry "PM" and sheep manures "SM") at a rate 25 m³/fed. on growth and chemical constituents of marjoram (Origanum majorana L.,) plants which grown by terminal cuttings.

The obtained results indicated that growth parameters (i.e., plant height, number of branch, fresh weight of herb, yield of herb dried air weight/plant, yield of leaves dried air weight/fed., number of roots/plant) as well as chemical constituents (essential oil %, oil yield per plant or feddan, total carbohydrates, N, P, K, Fe and Zn content of the herb) were significantly increased by applying biofertilizer (active dry yeast spray), mineral "NPK" and organic manures. Similar results were observed by using combined treatments of active dry yeast with the organic manures. Application of both mineral "NPK" or poultry manure gave the best values of growth parameters (plant height, number of branch, fresh weight of herb, herb dried air yield weight/plant, leaves dried air yield weight/fed. number of roots/plant) as well as chemical constituents (essential oil percentage, oil yield per plant and per feddan). Poultry manure gave the best results for N, P and K (%), Fe and Zn (mg/g). and total carbohydrate contents in the cuts than the other treatments. In addition the effect of active dry yeast combined with either mineral "NPK" or poultry manure was statistically insignificant on all studied growth parameters. So it could be recommended with using biofertilizer (active dry yeast spray) at rate 2 g/L. combined with poultry manure at rate 25 m³/fed. to get the highest growth rate of marjoram with favorable chemical constituents.

Key words: Marjoram (Origanum majorana L.,) terminal cuttings, biofertilizers, spray active dry yeast, organic manures.