

EFFECTS OF N-FERTILIZER SOURCE, BIOFERTILIZER AND FOLIAR SPRAY WITH DELFAN (AMINO ACIDS) OR GARLIC EXTRACT ON GROWTH, YIELD AND FRUIT QUALITY OF SWEET PEPPER PLANTS.

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ABSTRACT

Field experiments were carried out on sweet pepper, *Capiscum annuum L.* cv. California Wonder, at the Experimental Farm of the Faculty of Agriculture, Moshtohor, Egypt, during the summer seasons of 2004 and 2005. Transplanting took place on 24th March in both seasons. Studies aimed to investigate the effect of organic manure and/or mineral N-fertilizer with or without biofertilizer inoculation on growth, yield and quality of plants. The treatments used were 60 kg/feddan organic-N as biogas manure, 60 kg/feddan mineral-N as ammonium sulfate (20.5% N) or 30 kg organic-N + 30 kg mineral-N with or without Microbin as biofertilizer and foliar application with Delfan as amino acids, garlic extract or without foliar application.

Results show that using 30 kg organic-N + 30 kg mineral-N, improved plant growth, yield and fruit quality than those received nitrogen doses (60kg N/fed.) either in the organic or in the mineral form. Inoculating seeds and transplant's roots with Microbin gave good results than when no biofertilizer was added. Also, the treatments sprayed with Delfan (amino acids) gave good results as compared with garlic extract or without foliar application. Therefore, using 30 kg organic-N + 30 kg mineral-N/feddan combined with Microbin and spray with Delfan gave the best growth and increased early and total yield with the best fruit quality as compared with all other used treatments.

This increase reached 37.20 and 16.05 % as an average in both seasons for early and total yield respectively, as compared with plants supplied with 60 kg mineral-N without biofertilizer or spraying treatments.

Key words: N-source, biogas, Delfan (amino acids), Garlic extract, Microbin

INTRODUCTION

Egypt like several countries is facing many critical food problems unless concentrated efforts are directed to maximize the agricultural production. The production of the high yields requires that the soil must have favorable physical, chemical nutritional and biological conditions. It is worth to mention that, good effect of organic nitrogen treatment as well as biofertilizer inoculation led to improve root and plant growth parameters. In addition, adding organic nitrogen and biofertilizer have beneficial return to increase population of soil microorganisms, especially in the surface layer at root rhizosphere, that produce substances, which stimulate plant growth (Awad, *et al.*, 1993). Many investigators emphasized the beneficial role of organic

manures incorporated with biofertilizer to stimulate plant growth, yield of vegetables among them Abdalla, *et al.* (2001) on pepper; Abou-Hussein, *et al.* (2002) on potatoes; Adam, *et al.* (2002) on cantaloupe; Rizk, *et al.* (2003) on squash and Shams (2003) on sweet pepper.

Proteins are formed by sequence of amino acids. Many studies found that foliar application of amino acids can improve the vegetative growth and fruit quality of chilli pepper (Maheswari *et al.*, 2004). The fresh extracts of *Allium sativum* can be used to improve the vegetative growth of many plants such as squash (Abou-Hussein, *et al.*, 1975 and Shafshak *et al.*, 2004).