

RESPONSE OF ZUCCHINI TO THE BIO-FERTILIZERS AND THE NUMBER OF SPRAY TIMES BY THE BIOZYME

Mohammed H. Nail and Saad A. Mahmood

Department of Horticulture and Garden Engineering, Faculty of Agriculture, University of Anbar, Iraq.
e-mail:alani2005ms@yahoo.com

(Received 5 May 2019, Revised 14 August 2019, Accepted 28 August 2019)

ABSTRACT : A field experiment was carried out in the full randomized design (RCBD) for the 2018 spring season on the zucchini plant in the fields of the Department of Horticulture and Garden Engineering, Faculty of Agriculture, Anbar University for the purpose of developing the vegetative growth and study the response of the zucchini to the treated with bio-fertilizers and bio-enzymes. The fertilizer was added in four levels, without adding (comparison), a complete chemical fertilizer recommendation, a biomass fertilizer + half a fertilizer recommendation, and only a few fertilizers, and four sprayed levels. The results showed that all the treatments recorded a significant differences compared to the comparison. The treatment with biomass + half of the fertilizer recommendation in the height of the plant, the dry weight of the plant, the leaf area, the percentage of the dry matter in fruits, the number of fruits.

Key words : Zucchini, bio-fertilizers, bio-enzymes.

INTRODUCTION

Cucurbita pepo L. is one of the most important summer vegetable crops belonging to the cucurbitaceae family (Bardaa *et al*, 2016). It is an important vegetable that is consumed in the stage of mature gardener before the seeds are formed they are easy to digest, the fruits of pumpkin of high nutritional value. It contains fat, carbohydrate and fiber (Pinke *et al*, 2018). It also contains mineral elements, such as calcium, phosphorus, iron, sodium, potassium, magnesium, also contain vitamin A, thiamine, panthenic acid and moderate amounts of riboflavin, containing 5-8% of the dry matter and make up of sugars 3-5% and protein 1% and the amount of vitamin C 20-30 mg 100 g-1 soft weight and vitamin E 30-40 mg (Angourani *et al*, 2017). Planted in Iraq in the spring and autumn, it is also cultivated in greenhouses in the winter. The prevailing belief is that the original habitat of the plantation is in the north and south of Latin America (Leljak-Levania *et al*, 2016). The gourd plant of vegetable annuals is a single-dwelling plant which carries a male and female flowers separately on the same plant (Prajapati *et al*, 2015). It needs a temperate of 15-27m as it is affected by low or high temperatures and requires a soil organic materials that retain moisture well and PH between 6.5-7.5. It is important for its seeds because it contains a high percentage of oils as well as its use as a food source for humans with its multiple medical uses, including the treatment of many prostate diseases (Barclay

et al, 2016). Due to high environmental pollution caused by excessive mineral fertilization also the high cost led to use the biological fertilizers, which are vaccines containing some of microorganisms, whether fungal, bacterial or algal, or overlap between them (Tanaka, 2015).

Mycorrhase fungi is beneficial for plants, they help the plant absorb nutrients directly from the soil the relationship is symbiotic by supplying the host plant with fungus energy and environment suitable for growth, reproduction and fungi in turn provide the plant with a greater area of absorption on the surface of the root (Vangelisti *et al*, 2017). For the purpose of limiting the use of chemical fertilizers and minimizing their adverse impact on human health and the environment (Zheng *et al*, 2015). The microorganisms have a role in increasing the growth of the plant and not only its role in stabilizing atmospheric nitrogen but also due to the production of growth regulators and the production of antibiotics or participation in the analysis of organic waste and the production of solvents for the elements and the production of some vitamins such as vitamin B12 (Bonfante and Desirò, 2015).

Plant growth catalysts are instrumental in stimulating phylogenetic processes required for plant growth and development at a very low concentrations, as the dioxins affect or contribute with other hormones in the division, elongation and expansion of the cells (Lobos *et al*, 2016), which stimulates the enzymes analyzed and embedded