DOI : 10.35124/bca.2019.19.2.2795

Biochem. Cell. Arch. Vol. 19, No. 2, pp. 2795-2802, 2019 | www.connectjournals.com/bca | *ISSN 0972-5075*

EVALUATION OF NANO FERTILIZER AND ABSTRACT OF ORGANIC MATTER AND METHOD OF APPLICATION ON AVAILABILITY AND UPTAKE OF SOME ELEMENTS AND GROWTH AND YIELD OF FABA BEAN (*VICIA FABA* L)

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(Received 11 September 2018, Revised 9 December 2018, Accepted 6 January 2019)

ABSTRACT : A field experiment was conducted in Al – Najaf Governorate during winter season 2017 to study the effect of foliar and soil application of abstract of organic matter with three abstracts (water: organic matter, 2:1, 3:1 and 4:1) and Nano fertilizer with three levels (0, 2 and 4) g L^{-1}on availability and uptake of NPK and growth and yield of Fababean (*Vicia Faba* .L) Grano variety. according to RCBD with three replicates was designed (54 treatments). results showed Superior the abstract of organic matter 4:1 in all parameters.Superior the level of nano fertilizer 4g L^{-1} in pods no., weight of 100 seeds, yield, seed N %, seed P %, seed K % and up take of NPK. Superior foliar application in pods no., weight of 100 seed, yield, percentageof seed PK % and up take of N. Superior interaction 4 :1 and 4 g L^{-1} in all parameters. Superior interaction 4:1 and foliar application in plant height, yield and seed N %. Superior interaction 4g L^{-1} and foliar application in plant height, pods no., weight of 100 seed, yield, up take of K. Superior interaction 4 :1*4g L^{-1}*foliar in plant height, pods no., weight of 100 seed, yield and similar results for others interaction between foliar and soil application.

Key words **:** Abstract organic matter, nano fertilizer, methods, uptake, faba bean.

INTRODUCTION

Faba beans (*Vicia faba* L.) are important food in Iraq and many countries as seeds or pods. They are an important source of macro and micronutrients, high amount of proteins, amino acids and have high effective role in human health. Turco *et al* (2016); Amarowicz and Pegg (2008). Yield of plant increased after addition of fertilizer to soil and / or leaves in deficient soils. Nanoparticles increasing in macro and micro nutrients contents in plant tissues. Christian *et al* (2017). nano fertilizer improved growth and yield of cereal. Shashidara *et al* (2015) , Prem *et al* (2015). The Nanofertilizers showed an initial effect and a subsequent slow-release compared to the commercial fertilizer, which released heavily early followed by the release of low and non-uniform quantities (Fujinuma and Balster 2010). The organic matter and its components are affected directly and non-directly on crop growth and yield. (Sangeetha and Devi 2006).

The aims of this research to Evaluation of Nano fertilizer and abstract of organic matter and method of application on availability and uptake of some elements and growth and yield of Faba bean (*Vicia faba*. L) .

MATERIALS AND METHODS

A field experiment was carried out in a winter season 2017 in clay loam soil (Table 1). the experiment carried out by using RCBD design with three replication, first factor Nano fertilizersuper micro plus that containing the following elements: (N 5%, P 3%, K 3%, Fe4.5% , Zn 8%, Ca 6%, Mg 6%, Mn 0.7% , Cu 0.65%, B 0.65% and Mo 0.1%) in three levels (0, 2 and 4 g L^{-1}). Second factor abstract of organic matter (organic matter : water 1:2, 1:3 and 1:4) Nitrogen fertilizer was added, 100 kg N h^{-1} from urea fertilizer 46% nitrogen while phosphorus 52 kg Ph^{-1} fromtriple super phosphate. Potassium 33kgkh^{-1} from potassium sulphate. Ali *et al* (2014). The experiment was planted at 20/11. Crop service operations and removal of weeds were carried out as needed. The harvest was done 22 / 4. Statistical analysis of the data was performed and the least significant difference was used for L.S.D under the probability level of > 0.05.

RESULTS AND DISCUSSION

Plant height cm

A results in table 2 showed significantly differences on plant height 49.4 Cm at 4:1 abstract of organic matter, May be because abstracted most of material and elements