

Influence of application methods of bio-fertilization on vegetative growth, seed yield and chemical composition of Fenugreek plants

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The field work was carried out at the experimental farm "Demo" in faculty of Agriculture, Fayoum University, during two successive seasons of 2013/2014 and 2014/2015. The aim was to investigate the effect of foliar, ground application (soil drenching) and both the two methods using (0, 5, 10 and 15g/l) of bio-fertilization with yeast (*Saccharomyces cerevisiae*) on the growth, yield and chemical constituents of Fenugreek plants. The results assured that Fenugreek plants highly reacted positively and significantly to different methods of bio-fertilization with active dry yeast either by spraying or soil drenching or using both together. Using the highest concentrations (10 and 15 g/l) of yeast by spraying or soil drenching, as individually, or applying them together as interaction proved to have the leadership in enhancing and increasing all vegetative growth characters; plant height, branches number plant⁻¹, fresh and dry weight plant⁻¹, seed yield and its contents of mucilage (%), trigonelline, protein and chemical composition of Fenugreek plants; chlorophyll a, b, carotenoids' contents and total carbohydrates content.

Fenugreek plants should be sprayed and drenched at a concentration of 10 and 15 g/l of yeast. Moreover, active dry yeast should be more mechanized and used in agriculture as a harmless bio-fertilizer with a marvellous ability in increasing seed yield and chemical constituents.

Keywords: Bio-fertilization, Fenugreek (*Trigonella foenum-graecum* L.), Active dry yeast (*Saccharomyces cerevisiae*), Mucilage and Trigonelline.