



## Physiological and chemical response of faba bean to water regime and cobalt supplement in sandy soils.

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**Abstract :** Two field experiments were carried out to study faba bean physiological and chemical response to water requirements and cobalt nutrition. Experiments were conducted at Research and production Station, National Research Centre, El-Nobaria, Beheara Governorate, during the two successive winter seasons 2012/2013 and 2013/2014. The results showed that irrigation with 100% of water requirement significantly increased plant height, shoot dry weight, root dry weight (gm), leaf area index, yield and nutrients status in shoot, root and seeds compared to addition of 50% of water requirement. Results appeared that no significant differences between 100 and 75% of water requirement. Results also indicated that cobalt concentrations up to 15 ppm had a promotive effect on aforementioned characters in faba bean. The interaction between water requirement and cobalt levels had significant effect on shoot dry weight, leaf area index, seed yield and protein percentage. Irrigation with 100% of water requirement integrated with cobalt at the rate of 15ppm gave the maximum values of shoot dry weight, leaf area index, seed yield and protein percentage. Moreover, it could be concluded that spraying faba bean plants with 15 ppm cobalt under 75 or 100% water requirements for improving growth, productivity and quality of faba bean seeds. Also, increase tolerance of the plants to water shortages under sandy soil conditions.

**Keywords:** Faba bean, Water requirements, Cobalt, Yield, nutrients status, Sandy soil.