

Influence of silicon addition on the growth, yield and nutrient content of soybean (*Glycine max*) plants

Doaa M. R. Abo-Basha

Plant Nutrition Department, National Research Centre, Dokki, Egypt

Abstract : Silicon (Si) is the second most common element in soil that has beneficial effects on living and non-living increase stress tolerance in plants. It can lead to increase production and product quality, reduce evaporation of perspiration, increase stimulation of some antioxidant enzymes and decreased sensitivity to some fungi. Therefore this study was conducted in order to compare the effect of different levels of Salicylic acid (SA) and method of addition. The different levels of salicylic acid (SA) were tested in two seasons in field experiment to assess their effects on improvement of growth and yield in soybean (*Glycine max*) plants in a complete randomized block design. The salicylic acid was added to soil in concentration of 2.5, 5.0 and 7.5 kg fed⁻¹ and sprayed at a rate of 250, 500 and 750 ppm. Data reported that the vegetative growth characters of soybean increased by increase the rate of salicylic acid fertilizer. The highest vegetative growth characters recorded with foliar application of 750 ppm fed⁻¹ salicylic acid etc. Plant height (cm), number of branches, number of pods per plant, 100-seed weight (g), straw yield and seed yield (90.24 cm, 3.27, 63.42, 20.15g, 6.16Mg ha⁻¹ and 5.35Mgha⁻¹ respectively). Foliar spraying of salicylic acid fertilizer had a significant effect on pigments (chlorophyll a, chlorophyll b and carotenoids) compared to control plants. The obtained results indicate that spraying plants with Salicylic acid at both investigated levels significantly increase N, P and K content in the leaf tissues than untreated plant. Seed protein followed the same trend obtained previously in nitrogen content the highest value is 32.77%. The highest value was recorded in spraying plants with 750 ppm salicylic acid in two study seasons.

Key words : salicylic acid fertilizer - growth - yield - nutrient content - soybean (*Glycine max*).

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