EFFECT OF IRON TOXICITY ON GROWTH OF FENUGREEK

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Abstract: Effect of iron stress on fenugreek (*Trigonella foenum–graecum* L.) was investigated to understand the basis of metal tolerance. Growth parameters such as root and shoot length, germination percentage, moisture percentage, fresh and dry weight were analyzed. Seeds were cultured on blotting paper in petri dishes at 22^0C and supplemented with 0 (control), 100, 200, 300, 400 and 500µM concentrations of $FeCl_3$. All the parameters were recorded at regular intervals of 5 days. A significant reduction from 92 to 44% was observed in seed germination percentage. Simultaneously, a significant reduction in shoot and root length was observed with increase in iron concentration. The maximum and minimum shoot length were 3.56cm (control) and 1.37cm (500µM $FeCl_3$) respectively. Root length exhibits a variable pattern. At low iron concentration (200µM) root length increased whereas it decreased significantly at higher concentrations, thus, indicating that low concentrations can enhance root growth. The root length ranges from 0.38cm (500µM $FeCl_3$) to 0.85 cm (control). Similar decrease was observed in fresh and dry weight with respect to increased iron concentrations. No significant increase was observed in moisture percentage. On the basis of present investigation it is concluded that fenugreek is iron sensitive as it exhibited a decline in all the growth parameters studied.

Keywords: Biomass, germination percentage, growth parameters, metal stress, *Trigonella foenum-graecum*

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