

Studies on *in vitro* propagation and biochemical analysis of *Trigonella foenum-graecum* L.

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Trigonella foenum - graecum L is a important medicinal plant which, is rare and extensively used in traditional system of medicine. It belongs to the family Fabaceae. The present study was mainly aimed to develop a protocol for the successful micro propagation and biochemical analysis of compounds present in the callus as well as in the *in vitro* plant. The explants selected for the present study includes, cotyledon, hypocotyls, shoot tip epicotyls. The shoot tips explants inoculation on MS medium with auxins and cytokinins alone and in combinations showed shoot initiation along a shoot initiation with basal callus formation. The chlorophyll pigment content in the callus with different morphology and the *in vitro* regenerated plant was assessed. Total chlorophyll value was estimated as 2.7277 mg/g. The total protein content in the *in vitro* regeneration plant and morphological different callus were estimated by Lowry's. and acryl amide gel electrophoresis. The protein content of the yield grown plants was estimated as 0.789 mg/g fresh weight and that of callus was estimated as 0.421 mg/g fresh weight. The seeds of field-grown plant as well as green friable callus obtained in 2,4-D of field - grown showed maximum amount of protein content. Peroxidase enzyme activity of callus was also determined. Green friable callus obtained from a combination of 2,4-D showed maximum peroxidase activity. The presence of secondary metabolites *in vitro* plant as well as callus indicated that *in vitro* system is a possible source for the isolation of Diosgenin.

Key words : Phytochemical, Diosgenin, *Trigonella*, Peroxidase activity, *In vitro* propagation

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