

## ABSTRACT

The *Tribulus* genus is reported to be a rich source of bioactive compounds and pharmaceutical products. In present study was executed to study the callus extracts of *Tribulus terrestris* L. (Family- Zygophyllaceae) were tested for the presence of biologically active constituents. The research work investigated the relationship of phytochemicals and antioxidants present in *T. terrestris*. Efficient callus cultures were established from juvenile leaves, stem, apical bud and nodal explants, obtained from *in vitro* grown seedlings. Simple MS medium was employed with various plant growth regulators alone and in combination of auxin and cytokinin. 6-Benzylaminopurine (BAP), thidiazuron (TDZ) and 2,4-dichlorophenoxyacetic acid (2,4-D) alone were evaluated for callus induction. Moreover the combinations of BAP and NAA, BAP and 2,4-D, BAP and TDZ, 2,4-D and Zeatin and BAP with indole-3-butyric acid (IBA) as well as CH were accepted for good callus induction. Indirect regeneration was recorded for leaf, stem and node callus cultures on different combinations of plant growth regulators. Four callus macerates (petroleum ether, chloroform, ethanol and aqueous) were prepared and subjected to qualitative and quantitative phytochemical screening, which presented a broad range of phytochemicals dominating with flavonoids, reducing sugars, saponins and phenols. Extracts of callus cultures induced under the influence of BAP 1 mg/L+IBA 1.5 mg/L+CH 800 mg/L and BAP 1 mg/L+2,4-D 2 mg/L showed phytochemical presence markedly. Antioxidant potential of callus culture extracts were appraised by DPPH, FRAP, TAA, Metal Chelating and ABTS approach. The callus extracts of BAP 1mg/L in combination with 2,4-D 2 mg/L presented highest amount of antioxidants followed by the callus macerate of 2,4-D 1mg/L and Zeatin 1 mg/L. The investigation revealed that the plant tissues and their callus cultures endow biologically active compounds and free radicals which can be further studied to enhance its efficacy for pharmacognosy.