PHYTOCHEMICAL STUDY OF CALLUS BODY OF *VERBESINA ENCELIOIDES* LEAVES

Chhaya Nenarsia, Career Point University Kota Rajasthan

Monika Karnawat*, Career Point University Kota Rajasthan

ABSTRACT

The annual herb *Verbesina encelioides,* a member of the Asteraceae family and known as golden crown beard, is a potential medicinal plant with assertive and dominant growth characteristics. In present study callus was raised from the leaf explant of *V. encelioides*. Callus was obtained on MS medium formed using 3% sucrose and 0.8% agar incorporated with 2mg/L BAP and 0.5 mg/L IAA. The callus was used for quantitative and qualitative analysis of primary and secondary metabolites. The results indicated the presence of numerous phyto-constituents like 3342 µg/gm total soluble sugar, 4126 µg/gm starch, 62mg/gm proteins, 5.21 gm lipid, 531 µg/gm phenols, 32.6 µg/gm tannins and 16.42 % saponins. By using thin layer chromatography, kaempferol and terpeniol were characterized. This study proves that *V. encelioides* callus has a significant number of nutritional values and secondary metabolites which can be beneficial to human health yet more research using chemical approaches is required to identify numerous applications of *V. encelioides* biomolecules through callus culture.

Keywords: *Verbesina encelioides,* Asteraceae, Phyto-constituents, Thin layer chromatography, Callus culture

MATERIAL AND METHOD

Plant Materials

The experimental plant material of *Verbesina encelioides* leaf was collected from Campus of University of Rajasthan, Jaipur and voucher specimen was deposited to the herbarium of Department of Botany, University of Rajasthan, Jaipur for authentication (RUBL no. 211480).

1.Callus induction

2.Biochemical Analysis

2.1.Analysis of Primary metabolites

2.1.1.Proteins

2.1.2.Total Soluble Sugars (TSS)

2.1.3.Starch

2.1.4.Lipids

2.1.5.Phenols

2.2.Analysis of Secondary Metabolites

2.2.1.Tannin

2.2.2.Saponin

2.3.Thin Layer Chromatography to Detection of Flavonoid and Terpenoid

a) Detection of Flavonoid b) Detection of Terpenoid c) Thin layer Chromatography

d) Running and staining

$$R_f = \frac{\text{Distance travelled by the solute (cm)}}{\text{Distance travelled by the solvent (cm)}}$$

CONCLUSION

The phytochemical screening of *V. encelioides* callus brought great results in a number of quantitative and qualitative tests, indicating the presence of both primary and secondary metabolic substances. These natural products have the potential to be novel medicinal sources for the development of new drugs. Further investigations to explore therapeutic efficacy, tolerability, and pharmaceutical properties of *Verbesina encelioides* callus phytochemical agents are recommended.