Abstract
The thesis entitled "Phytochemical Investigations on Cytotoxic Xanthanolides from Xanthium strumarium" deals with the phytochemical studies carried out on the stem and root parts of Xanthium strumarium with a view to isolate and study some sesquiterpenoidal lactones speculated to be associated with cytotoxic activity and may prove to be potentially cytotoxic agents.

CHAPTER - I

This chapter which is introductory one gives an account of various cytotoxic compounds with special reference to sesquiterpene lactones of Compositae family. The recently investigated sesquiterpene lactones have also been referred to, in this chapter. It also gives a brief account of the problem taken and work done with relevant bibliography.
CHAPTER - II

ISOLATION AND STRUCTURAL STUDY OF A NOVEL XANTHANOLIDE: 14-HYDROXY XANTHUMIN FROM THE STEMS OF XANTHIUM STRUMARIUM LINN (FAM. COMPOSITAE)

The concentrated CHCl₃-soluble fraction of the hot 90% EtOH extract of the stems of Xanthium strumarium Linn, when worked up, yielded a novel xanthanolide in (0.053) yield, molecular formula C₁₇H₂₂O₆, m.p. 107-08° and M⁺ 322 (EIMS). Various colour reactions, chemical degradations and spectral data led to the identification of the compound as; 14-hydroxy xanthumin (I):

![Chemical Structure](image)

(I)

(vi)
CHAPTER - III

ISOLATION AND STRUCTURAL STUDY OF A NOVEL XANTHANOLID; 6-β-HYDROXY XANTHATIN FROM THE ROOTS OF XANTHIUM STRUMARIUM LINN (FAM. COMPOSITAE)

This chapter incorporates the study of a novel xanthanolide, molecular formula $C_{15}H_{18}O_4$, m.p. 157-59$^\circ$ and $M^+$ 262 (FIMS) in yield (0.075%) from the concentrated $Me_2CO$ soluble fraction of 90% EtOH extract of roots of Xanthium strumarium Linn. It was identified as 6-β-hydroxy xanthatin (II) by various chemical degradations and spectral analysis.
CHAPTER IV

ISOLATION AND STRUCTURAL STUDY OF A XANTHANOLIDE; XANTHINOSIN FROM THE STEMS OF XANTHIUM STRUMARIUM LINN (FAM. COMPOSITAE).

Isolation and structural study of a xanthanolide molecular formula $\text{C}_{15}\text{H}_{20}\text{O}_3$, $\text{M}^+$ 244 (EIMS), yield (0.037%) from the concentrated CHCl$_3$-soluble fraction of the concentrated hot 90% EtOH extract of the stems of Xanthium strumarium Linn and its identification as: Xanthinosin (III) by the applications of spectral analysis and chemical degradation have been dealt in this chapter of the thesis.
CHAPTER V

STUDIES OF TWO STEREOISOMERIC XANTHANOLIDES; XANTHININ AND XANTHUMIN FROM XANTHIUM STRUMARIUM LINN (FAM. COMPOSITAE)

The isolation and structural investigations carried out on the roots and stems of xanthium strumarium leading to the identification of xanthinin IV (isolated from the petroleum ether soluble fraction of the concentrated 90% EtOH extract of the roots) molecular formula C_{17}H_{22}O_{5}, m.p. 119-20°, M^+ 306 (EIMS) yield 0.097% and xanthumin V (isolated from the petroleum ether soluble fraction of the concentrated 90% EtOH extract of the stems) molecular formula C_{17}H_{22}O_{5}, m.p. 99-100°, M^+ 306 (EIMS), yield 0.052% have been incorporated in this chapter of the thesis.

(IV)

(V)

(IX)