ABSTRACT
The present thesis deals with the studies on cytotoxic terpenoidal lactones on the (1) stems and roots of Saussurea lappa C.B. Clarke and (2) roots of Solidago virgaurea Linn. and consists of five chapters. A brief resume of each one is described below;

CHAPTER-I
INTRODUCTION

The first chapter which is an introductory one gives an introductory idea about CARCINOMA and also describes physiological and pharmacological importance of the terpenoidal lactones of plant origin. In addition to this it incorporates the various phytochemical investigations already carried out on (1) Saussurea lappa C.B. Clarke and (2) Solidago virgaurea Linn.

The salient features of the problem taken and work done has also been described in it.
CHAPTER II ISOLATION AND STRUCTURAL STUDY OF A NOVEL SESQUITERPENE LACTONE; 7-α-14-HYDROXY COSTUNOLIDE; FROM THE STEMS OF SAUSSUREA LAPPA C.B. CLARKE

This chapter incorporates the details of isolation and structural elucidation of novel sesquiterpene lactone (0.068%), molecular formula C_{15}H_{20}O_{3}, m.p. 105-107°C, and M = 248 isolated by subjecting to column chromatography, the non saponifiable part of the pet. ether extract of stems of Saussurea lappa C.B. Clarke.

Various chemical degradations and colour reactions along with spectral studies (UV, IR, ^13C NMR, CNMR and Mass) established its structure as; 7-α-14-hydroxy costunolide (I)
CHAPTER III ISOLATION AND STRUCTURAL STUDY OF NOVEL SESQUITERPENE-LACTONE; 15-HYDROXY DEHYDROCOSTUS LACTONE FROM THE ROOTS OF SAUSSUREA LAPPA C.B. CLARKE:

This part deals with the isolation and structural elucidation of a novel sesquiterpene lactone (0.087\%), molecular formula $C_{15}H_{19}O_3$, m.p. 60, and $M^+$ 247, isolated from the acetone soluble part of the concentrated 95% ethanolic extract of roots of Saussurea lappa C.B. Clarke.

Usual chemical degradation, colour reactions and UV, IR, $^1$HNMR, $^{13}$CNMR and Mass spectral studies led to its identification as; 15-hydroxy dehydrocostus lactone (II)

(II)
CHAPTER IV

ISOLATION AND STRUCTURAL STUDY OF NOVEL SESQUITERPENE LACTONE; 12- HYDROXY-α - CYCLOCOSTUNOLIDE; FROM THE ROOTS OF SAUSSUREA LAPP A C.B. CLARKE

The study of novel sesquiterpene lactone (0.072%), molecular formula $C_{15}H_{22}O_3$, m.p. 82-89$^\circ$, and $M=250$, obtained by subjecting to column chromatography, the ethyl acetate soluble part of the concentrated 95% ethanolic extract of the roots Saussurea lappa C.B. Clarke has been dealt in this chapter. Various colour reactions, chemical degradations and spectral studies (UV, IR, HNMR, CNMR and Mass) identified it as; 12- hydroxy-α-cyclocostunolide(III).
CHAPTER V

This chapter comprises of two parts;

PART I

ISOLATION AND STUDIES OF SESQUITERPENE LACTONES; COSTUNOLIDE AND DIHYDROCOSTUNOLIDE; FROM THE ROOTS OF SAUSSUREA LAPPA

C.B. CLARKE:

The study of sesquiterpene lactones identified as Costunolide, molecular formula $\text{C}_{15}\text{H}_{20}\text{O}_2$, m.p. 105-108, $M = 232$ (0.076%) and Dihydrocostunolide molecular formula $\text{C}_{19}\text{H}_{22}\text{O}_2$, m.p. 80, $M = 234$ (0.058%) obtained by subjecting to column chromatography, the petroleum ether soluble fraction of the concentrated 95% ethanolic extract of the roots of Saussurea lappa C.B. Clarke have been dealt in this part. Chemical and spectral studies also identified them as; Costunolide(IV) and Dihydrocostunolide (V)

![Chemical structures of Costunolide (IV) and Dihydrocostunolide (V)]
PART-II

ISOLATION AND STUDY OF SESQUITERPENE LACTONE; PARTHENOLIDE FROM THE ROOTS OF SOLIDAGO VIRGAUREA LINN.

This part deals with the study of sesquiterpene lactone identified as Parthenolide, molecular formula $\text{C}_{15}\text{H}_{20}\text{O}_3$, m.p. 113$^\circ$, M$^+$ 248 (0.039%) obtained by column chromatography of the hexane soluble fraction of the concentrated 95% ethanolic extract of roots of Solidago virgaurea Linn. The identity of parthenolide was further confirmed by spectral analysis (VI)