ABSTRACT

This thesis entitled ‘Phytochemical Investigations on some plants of Bundelkhand region’ consists of five chapters and deals with the phytochemical studies made on the (i) aerial parts of *Kickxia ramosissima* (Wall.) Janchen Syn. *Linaria ramosissima*, (ii) stems of *Ziziphus nummularia* and (iii) aerial parts of *Celsia corromandeliana* (Vahl.). A brief description of the five chapters is given below:

CHAPTER 1:

INTRODUCTION:

The chapter 1 is an introductory one and deals briefly with the historical facts, relevance, scope and the future prospects of the plant chemistry. It also gives in short the applications of modern methods of isolation, separation and the structural determination viz. chromatographic and spectroscopic techniques. This chapter also covers the brief account of some of the important allelochemicals along with the important features of the problem taken and the actual work done with relevant bibliography.

CHAPTER 2:

ISOLATION AND STUDY OF A NOVEL ACYLATED FLAVONOL GLYCOSIDE; 6-[2"-HYDROXY-3"-METHYL BUTYL] QUERCETIN -7-O- (2"'-GALLOYL)-β-D-GLUCOPYRANOSIDE” FROM *KICKXIA RAMOSISSIMA* (WALL.) JANCHEP SYN. *LINARIA RAMOSISSIMA* (FAMILY- SCROPHULARIACEAE).

A novel flavonoid glycoside was isolated from the CHCl₃: CH₃OH (4:6) fraction of ethyl acetate soluble part of 95% methanolic extract of aerial parts of *Kickxia ramosissima* (Wall.) Janchen syn. *Linaria ramosissima*. The compound was analysed for the molecular formula C₃₃H₃₄O₁₇, m.p. 256-257°, M⁺ 702. This
CHAPTER 3:

ISOLATION AND STUDY OF A NOVEL FLAVONE GLYCOSIDE, “8-PRENYL-CHRYSOERIOL-4’-O-β-D-XYLOPYRANOSYL-(1→2)-α-L-ARABINOPYRANOSYL-(1→6)-β-D-GALACTOPYRANOSIDE” FROM KICKXIA RAMOSISSIMA (WALL.) JANCHEN SYN. LINARIA RAMOSISSIMA (FAMILY SCROPHULARIACEAE).

This chapter of the thesis incorporates the structural determination of a novel flavonoid glycoside with molecular formula C_{37}H_{46}O_{19}, m.p. 308-309°,
molecular weight 794 (EIMS). This was isolated from the CHCl₃: CH₃OH (1:9) fractions of the extract, obtained from the chapter 2. The flavonoid glycoside II was characterised as "8-prenyl-chrysoeriol-4'-O-β-D-xylopyranosyl-(1→2)-α-L-arabinopyranosyl-(1→6)-β-D-galactopyranoside" (II) on the basis of colour reactions, chemical analysis, UV, IR, ¹H NMR, ¹³C NMR and Mass spectroscopy.

CHAPTER 4:

ISOLATION AND IDENTIFICATION OF A TRITERPENOIDAL SAPONIN GLYCOSIDE: "ECHINOCYSTIC ACID -3-O-β-D-GALACTOPYRANOSIDE" FROM THE STEMS OF ZIZIPHUS NUMMULARIA (FAM. RHAMNACEAE).

This chapter of thesis includes the structural elucidation of a triterpenoidal saponin) analysed for molecular formula, C₃₆H₅₈O₉, m. p. 251-
253° and M⁺ 634 (EIMS) and was extracted from the 80% ethanolic extract of stems of *Ziziphus nummularia*.

The structure of compound was ascertained as echinocystic acid –3-O-β-D-galactopyranoside on the basis of colour reactions, chemical analysis, UV, IR, ¹H NMR, ¹³C NMR and Mass spectroscopy.

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**CHAPTER 5:**

**ISOLATION AND IDENTIFICATION OF A TRITERPENOID, "3, 21-DIHYDROXY - OLEAN – 12 - EN – 28 - OIC ACID" FROM THE AERIAL PARTS OF *CELSIA COROMANDELIANA*”

The methanolic extract of the aerial parts of *C. coromandeliana* (Vahl.) yielded a triterpenoid, 3, 21-dihydroxy - olean – 12 - en – 28 - oic acid,
molecular formula C$_{30}$H$_{48}$O$_{4}$, m.p. 292-293$^\circ$ and M$^+$ 472 (EIMS). It was soluble in methanol and ethanol and responded positively to all the tests of triterpenoids.

In this chapter, the structure of this compound is ascertained by the chemical and spectral techniques viz. IR, $^1$H NMR, $^{13}$C NMR and Mass spectroscopy.