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Introduction
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Plants serve as a vast reservoir of many complex organic compounds. The wide variety of compounds such as alkaloids, steroids and terpenoids produced in plants, which are not primary metabolites, are termed as secondary metabolites. The secondary metabolites endow some unique and species-specific characteristics to the plants. Many secondary metabolites have well defined biological functions. This realization has given a new impetus to the scientific study of secondary metabolites.

In the present scenario, there is an increasing demand for natural products in food industry, pharmaceuticals, cosmetics and agricultural sectors. In this context phytochemical study to identify newer chemicals has got great relevance. Phytochemical studies have become more reliable and encouraging with the development of modern analytical techniques.

In the present work the leaves of *Piper colubrinum* (Piperaceae), aerial parts of *Mussaenda frondosa* (Rubiaceae) and *Humboldtia vahliana* (Leguminosae) and the pericarp of fruits of *Artocarpus heterophyllus* (Moraceae) were investigated for their secondary metabolites. The major compounds isolated belong to the groups of flavonoids and triterpenoids.
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Naturally occurring flavonoids have been used widely in chemotaxonomic studies of plants. Flavones and flavonols constitute a group of biosynthetically related natural products. No universal function has been established for flavones and flavonols in plants. However, many functions in individual plants have been demonstrated. These include protection of plants from ultraviolet light, insects and pests; pollinator attractants; antioxidants; plant hormone controllers; enzyme inhibitors and allelopathic agents. Flavonoids are attracting the attention of medical scientists in recent years because of their anticarcinogenic, antiallergic and anti-inflammatory properties. The recent discovery that flavonoids are involved in the process of nitrogen fixation in plants also opens the way for agricultural application of these constituents.

Triterpenoids are another class of compounds that are ubiquitous in plants. Some triterpenoids present in the latex and resins of plants are believed to be involved in chemical defence against pathogens and herbivores. Triterpenoids possess various biological properties including anti-inflammatory, antifeedant, pesticidal, fungitoxic and antimicrobial activities. Triterpenoids with cytotoxic activity and inhibitory effect on seed germination are also known.

The thesis comprises of six chapters. After this chapter on Introduction, Chapters II, III, IV and V deal with the isolation and characterization of crystalline
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substances from *P. colubrinum*, *M. frondosa*, *A. heterophyllus* and *H. vahliana*, respectively.

Chapters II, III and IV are divided into six major sections. The first section of each chapter gives a brief introduction. Section 2 deals with the phytochemicals isolated earlier from the respective genus and their biological activities. A brief account of the present work is given in Section 3 of all the chapters. The isolation procedures, identification of compounds and the relevant references are presented in the sections 4, 5 and 6, respectively. In chapter V the sections 1 and 2 are combined. Chapter VI summarises results of the present study.