CHAPTER 1

OBJECTIVE OF THE STUDY
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Herbal medicines are widely used in conventional as well as alternative medical practices in many countries, both developed and developing. Although herbal medicines have been used by the Indian people for centuries, they have not yet been developed to a level as to serve as a substitute or complementary to synthetic drugs.

The WHO estimates that 65-80% of the world population uses traditional medicine as their primary form of healthcare. It is also observed that more than 45,000 plant species are being used around the world for medicinal purposes in traditional and ethnomedicinal practices. (Gupta et al., 2000).

Phytomedicines are flooding the markets of advanced countries and the consumers world over have shown preference of natural-based formulations. Emphasis is “Natural is better”. (Ortiz et al., 1998)

Several pharmacopoeias like British Pharmacopoeia, Japanese Pharmacopoeia, United States Pharmacopoeia, British herbal compendium etc lay down monographs to maintain their quality in their respective nations. Government of India too has brought out Ayurvedic Pharmacopoeia of India, which recommends basic quality parameters for 50 common Ayurvedic herbal drugs. (Mukherjee et al., 1998)

Standardization of herbal drugs purports to offer the opportunity to use herbs in more rational way for scientific predetermined therapeutic objectives. This includes assurance of consistently strong product with guarantee consistent to deliver an efficacious product (Kotian et al., 2000). Standardization is a very important aspect of manufacturing and supply of herbal drugs. Today, quality assurance is the thrust area for traditional formulations like chuma, bhasmas, liquid orals, lehas etc (Mukherjee et al., 2002).
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There are number of limitations that create serious problems when one attempts to build in quality into a herbal product, while each single herb can contain large number of compounds, over all pharmacological effects are not due to single compounds but several compounds causing synergistic effects. It is not possible to analyze for presence or absence, either qualitative or quantitatively, for all these compounds. So the rational approach is to test for the presence or absence of one or more active principles by adopting modern analytical techniques like GC, HPLC or HPTLC. This approach is called as “Marker Compound testing”, which can help in monitoring the presence or absence of a group of compounds from the herbs. Absence of a validated marker compound that can be used as reference substance along with absence of standardization methods for detection or quantification of the marker add to the problems, which can be overcome by the use of techniques like fingerprinting. (Narayana et al., 1997)

Chemical profiling is a versatile technique and can be made to good use in standardization. Fingerprinting means establishing a characteristic chemical pattern for the plant material or its fraction or extract, that consists of established classes of chemical compounds like primary metabolites (carbohydrates, proteins, lipids), secondary metabolites (alkaloids, flavanoids, coumarins, triterpenoids etc) and inorganic salts and metals. (Butani et al., 2000). Looking to the widespread use of herbal drugs, WHO has also emphasized the need to ensure quality control of medicinal plant products by using modern techniques and applying suitable standards. Thus this organization has published guidelines to ensure reliability and reproducible effects of herbal formulations.
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However, incorporation of the traditional medicine into the health care system prior to systemic investigation, standardization and proper formulation may cause problems, such as inaccurate dosage, lack of proof of safety and efficacy and/or interaction risk with modern drugs. Standardization of traditional herbs shall provide the solution to most of these problems of traditional medicine. Qualitative and quantitative characterization of the extracts or the traditional preparations is indispensable to confirm the safety and efficacy of medicinal plants. Quality control of raw materials, crude extracts, intermediate and finished products and manufacturing parameters require suitable quantitative determination.

With this respect, the aim of the study is:

1. Extraction, isolation and characterization of a triterpenoidal aglycone from the seeds of *Achyranthes aspera* Linn

2. Quantitative determination of triterpenoidal aglycone from seeds of *Achyranthes aspera* by HPTLC method.

3. To study the effect of germination on the content of triterpenoidal aglycone from the seeds of *Achyranthes aspera* by HPTLC method.

4. Extraction, isolation and characterization of a saponin and its triterpenoidal aglycone from the pericarp of *Sapindus mukorossi*.

5. Quantitative determination of a saponin and its triterpenoidal aglycone from the pericarp of *Sapindus mukorossi*.

6. Extraction, isolation and characterization of a triterpene acid from the leaves of *Alstonia scholaris* R. Br.

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7. Quantitative determination of a triterpene acid from the leaves of *Alstonia scholaris* R. Br by HPTLC method.
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References:


