**Aim and Scope**

Medicinal plants have a promising future because there are about half million plants around the world, and for most of them their medical activities have not been investigated yet, and their medical activities could be decisive in the treatment of present or future studies. Herbs are staging a comeback and herbal 'renaissance' is happening all over the globe.

More than 80,000 medicinal plants are available in India. Of these, about 15,000–20,000 plants have good medicinal value. However, only 7000–7500 species are used for their medicinal values by traditional communities. In India, drugs of herbal origin have been used in traditional systems of medicines such as Unani and Ayurveda since ancient times. The Ayurveda system of medicine uses about 700 species, Unani 700, Siddha 600, Amchi 600 and modern medicine around 30 species. Global estimates indicate that 80% of the world population cannot afford the products of the Western Pharmaceutical Industry and have to rely upon the use of traditional medicines which are mainly derived from plant material.

In spite of the overwhelming influences and our dependence on modern medicine and tremendous advances in synthetic drugs, a large segment of the world’s population still like drugs from plants. In many of the developing countries, the use of plant drugs is increasing because modern life saving drugs are beyond the reach of three quarters of the third world's population although many such countries spend 40–50% of their total wealth on drugs and health care.
Phytomedicines are also being used increasingly in Western Europe. Recently, the US Government has established the “Office of Alternative Medicine” at the National Institute of Health at Bethesda and its support to alternative medicine includes basic and applied research in traditional systems of medicines such as Chinese, Ayurvedic, etc. with a view to assess the possible integration of effective treatments with modern medicines. The development of systematic pharmacopoeias dates back to 3000 BC, when the Chinese were already using over 350 herbal remedies. Ayurveda, a system of herbal medicine in India, Sri Lanka and South-East Asia has more than 8000 plant remedies and around 35,000–70,000 plant species. China has demonstrated the best use of traditional medicine in providing the health care.

Flavonoids are a class of plant secondary metabolites. They can be classified into three types, namely flavonoids or bioflavonoids, isoflavonoids, and neoflavonoids. The three flavonoid classes above are all ketone-containing compounds. The flavonoids are non-ketone polyhydroxy polyphenol compounds, which are more specifically termed flavonoids. Flavonoids have been shown to have a wide range of biological and pharmacological activities in in vitro studies. It includes anti-allergic, anti-inflammatory, antioxidant, anti-microbial, anti-cancer, and anti-diarrheal activities.

Flavonoids have also been shown to inhibit topoisomerase enzymes and to induce DNA mutations in the mixed-lineage leukemia (MLL) gene in in vitro studies. Flavonoids have antioxidant activity in in vivo studies with rats, protecting their gastrointestinal mucosa against the reactive oxygen species generated by acute and chronic stress. Inflammation has been implicated as a possible origin of numerous local
and systemic diseases, such as cancer, cardiovascular disorders, diabetes mellitus, and celiac disease. Preliminary studies indicate that flavonoids may affect anti-inflammatory mechanisms via their ability to inhibit reactive oxygen or nitrogen compounds. Flavonoids have also been proposed to inhibit the pro-inflammatory activity of enzymes involved in free radical production, such as cyclooxygenase, lipoxygenase, or inducible nitric oxide synthase, and to modify intracellular signaling pathways in immune cells.

Flavonoids reduce the risk of atherosclerosis, reduce arterial blood pressure and risk of hypertension, reduce oxidative stress and related signaling pathways in blood vessel cells, modify vascular inflammatory mechanisms, improve endothelial and capillary function, modify blood lipid levels, regulate carbohydrate and glucose metabolism, and modify mechanisms of aging. Flavonoids have been shown to have (a) direct antibacterial activity, (b) synergistic activity with antibiotics, and (c) the ability to suppress bacterial virulence factors. Flavonoids have been shown to exhibit their actions through effects on membrane permeability and by inhibition of membrane-bound enzymes such as the ATPase and phospholipase. They also serve as health promoting compounds as a result of their anion radicals.

Having known the importance of medicinal plants and biopotential effect of flavonoids, the present study was undertaken with the following aim and objectives.
**Aim**

Evaluation of biopotentials of flavonoids extracted from medicinal plants.

**Objectives**

- To isolate the flavonoid glycosides from few Indian plants.
- To identify the chemical constituents of the isolated flavonoid glycosides by spectral data.
- To understand the antioxidant nature of the flavonoid glycosides i.e., free radical scavenging power using standard *in vivo* and *in vitro* tests.
- To study the anti-cancer effect of the flavonoid glycosides.
- To screen the anti-inflammatory effect of the flavonoid glycosides.
- To understand the hepatoprotective effect of the flavonoid glycosides.
- To understand the anti-diabetic effect of the flavonoid glycosides.
- To evaluate the effectiveness of the flavonoid glycosides in preventing the formation of gastric ulcer experimentally by ethanol induced gastric damage in rats.
- To screen the anti-microbial activity of flavonoids by disc diffusion and modified drug addition methods.