2. Aim and Objectives:

2.1 Aim of the Study

Aim:

“Pharmacological Screening of Selected Medicinal Plants Used In Indian Folk Medicine for Their Various Biological Properties”.

2.1.1 To carried out Pharmacognostic evaluation of *P. aculeata* and root of *R. aquatica*.

2.1.2 To carried out phytochemical evaluation of *P. aculeata* and root of *R. aquatica*.

2.1.3 To carried out anti-inflammatory, analgesic, antipyretic and antioxidant activity of different extracts of *P. aculeata* and root of *R. aquatica*. 
2.2 Objectives of the Study:

Today, there are very old traditions and records of popular healing methods that have maintained their importance despite new developments and progress in the field of Chemistry, Pharmacy and Medicine. Indeed, interest in herbal drugs is increasing. The role of Natural Products in the development of drugs used in modern medicine is unsurpassed even when synthetic chemistry has been developed beyond expectations.

Inflammation is defined as the local response of living mammalian tissues to injury due to any agent. It is the body’s defense reaction in order to eliminate or limit the spread of injurious agent as well as to remove the consequent necrosis cells and tissues\textsuperscript{25}.

There is probably nothing more debilitating than chronic pain. Chronic pain afflicts 50 to 80 millions midlife Americans and costs us over $100 billion in social costs every year. Pain is a disabling accompaniment of many medical conditions and pain control is one of the most important therapeutic priorities\textsuperscript{10}.

Fever may be due to infection or one of the sequels of tissue damage, inflammation, graft rejection, or other disease states. Antipyretic are agents, which reduce the elevated body temperature. Regulation of body temperature requires a delicate balance between production and loss of heat, and the hypothalamus regulates the set point at which body temperature is maintained\textsuperscript{20}.

Antioxidant compounds in food play an important role as a health protecting factor. Scientific evidence suggests that antioxidants reduce the risk for chronic diseases including cancer and heart disease. Primary sources of naturally occurring antioxidants are whole grains, fruits and vegetables. Plant sourced food antioxidants like vitamin C, vitamin E, carotenes, phenolic acids, phytate and phytoestrogens have been recognized as having the potential to reduce disease risk\textsuperscript{34}.

Modern medicines from phytoconstituents have little to offer for alleviation of inflammatory activity.

A drug with anti-inflammatory activity usually exhibit antipyretic and analgesic properties. The best examples would be the nonsteroidal anti-inflammatory drugs, which possess all three activities.
By preliminary phytochemical screening it was found that all the selected plants contain flavonoids, phenolics, tannins\textsuperscript{50-56}. Many phenolics, such as flavonoids, functions as analgesic antipyretic, anti-inflammatory and scavengers of free radicals by rapid donation of a hydrogen atom(s) to radicals and many plants containing flavonoids /phenolics were used in the treatment of analgesic, anti pyretic, anti-inflammatory and scavengers of free radicals\textsuperscript{57-58}. Flavonoids have been linked with analgesic, anti-inflammatory and antipyretic activity\textsuperscript{59}.

All parts of \textit{P. aculeata} Linn are reported to be used as antipyretic; leaves are considered as diaphoretic and abortifacient and \textit{P. aculeata} contain various flavonoids, flavonols and flavones according to the literature (orientin, iso-orientin, vitexin, iso-vitexin, lucenin-II, vicenin-II, diosmetin 6-C-B-glucoside, apigenin, luteolin, 7-glycosyl kaempferol, chrysoeriol, epi-orientin, Parkinsonin-A, Parkinsonin-B and Parkintin\textsuperscript{60-66} and reported anti-oxidant, anti-inflammatory, analgesic activity on leaves\textsuperscript{67} and bark\textsuperscript{68-69} parts of \textit{P. aculeata} but no scientific reports are available for the same, hence to give a scientific back ground to the above traditional claim this work has been taken up.

\textit{R. aquatica} reported that the plant is a mandatory component of many ayurvedic drug preparations and is an important traditional medicine for kidney and bladder stones. The root tuber is used in fever and reported anti-oxidant, anti-inflammatory activity\textsuperscript{56} on this plant but no scientific reports are available for the same, hence to give a scientific back ground to the above traditional claim and papers so this work has been taken up.

Phytochemical and Pharmacological investigations have added a great deal of status to the use of medicinal plants by revealing the presence of active principles and their actions on human and animal systems. Investigation in the field of Pharmacognosy and Pharmacology have supplied valuable information on medicinal plant with regard to their availability, botanical properties, the method of cultivation, collection, storage, commerce and therapeutic uses. All these have contributed towards their acceptance in modern medicine and their inclusion in Pharmacopoeias of civilized nations. The objective of our study is to evaluate the Pharmacognostic and Phytochemical character and analgesic, anti-pyretic, anti-inflammatory and antioxidant activity of the alcoholic and aqueous extracts of leaves and bark of \textit{P. aculeata} and root of \textit{R. aquatica}.
Determination of various physicochemical parameters and HPTLC finger print analysis will be also carried out.