6 DISCUSSION

Due to increasing frequency of NSAIDs and their reported common side effects, there is need to focus on the scientific exploration of the herbal drugs having lower side effects and continuous search for indigenous drugs, which can provide relief to inflammation\textsuperscript{147}. Analgesic and anti-inflammatory activity of many plants have been attributed to their high $\beta$-sitosterol, flavonoids or saponin glycosides\textsuperscript{150-152}. The tannins, phenolic acid, flavonoids, saponin are known to be biologically active. Flavonoids are known to target prostaglandin which is involved in late phase of acute inflammation and pain perception. Hence presence of flavonoids in the extract may be contributed to its analgesic and anti-inflammatory activity. Tannins have been found to from irreversible complexes with proline-rich proteins resulting in the inhibition of the cell protein synthesis. The phenolic compounds are known to be toxic to microorganism. The site and number of hydroxyl groups on the phenol group are thought to be related to their relative toxicity to the microorganisms. The probable mechanism responsible for phenolic toxicity to microorganisms include enzyme inhibition by oxidized compounds possibly thought reaction with sulphydryl groups or through more non specific interaction with proteins. Flavonoids are also hydroxylated phenolic substances but occur as a C$_6$-C$_3$ unit linked to an aromatic ring. Since they are known to be synthesized by plants in response to microbial infection hence they have been found in-vitro to be effective antimicrobial substances against a wide array of microorganisms\textsuperscript{148-151,153}.

In the present study, phytochemical investigation revealed the presence of flavonoids, carbohydrates and saponin glycosides in aqueous and ethanolic extract of \textit{actiniopteris radiata}, where as tannin and saponin glycosides in aqueous extract of \textit{caralluma adscendens} but its ethanolic extract along with these shown presence of carbohydrate and alkaloids\textsuperscript{154}. 
The spectral study and elemental analysis of isolated compound indicates that the compound may be C₈H₁₂O or CH₃-CH₂-CH₂-COOH or terpene.

Administration of *actinopteris radiata* and *caralluma ascendens* extracts shown potent analgesic activity in the Acetic acid induced Writhing method, where as both extracts shown non-significant analgesic activity in Tail flick method. Hence it is indicated that both plant extracts possesses only potent peripheral mediated analgesic activity and inhibits predominantly peripheral pain mechanism.

The present investigation provides scientific experimental data, which supports and confirms the claims for use of selected plants in traditional system of medicine in treating pain. The extracts were found to produce marked analgesic effect due to the presence of alkaloids, tannins, flavonoids and phenolic acid, which have been qualitatively reported in the plant extracts\cite{155}.

In general inflammatory stimuli will be microbes, chemicals and necrosed cells which activate the different mediators through a common trigger mechanism. The carrageenan-induced paw edema is a prototype in the acute phase of inflammation. It is a biphasic type of mechanism. The first phase is attributed by the release of histamine and serotonin and the delayed phase by leucotrienes and prostaglandins. The aqueous and ethanolic extracts of *actinopteris radiata* and *caralluma ascendens* exhibited significant anti-inflammatory activity.

The extracts of the plants has been revealed the presence of phytoconstituents such as β-sitosterol palmitate, β-sitosterol, β-sitosterol-D-glucoside and Quarcetin-3-rutinoside. It has been observed that plant constituents with flavonoids and tannins are reported to inhibit the prostaglandin synthesis. Many of non steroidal anti-inflammatory drugs have well balanced anti inflammatory and ulcerogenic activities which are considered to be due to prostaglandins synthetase inhibitor activity. *C. arabica* a related species has a significant anti-inflammatory activity supporting the result from the present study\cite{155-158}.
Both the plant extracts tested for antimicrobial activity have shown appreciable results. The ethanolic and aqueous extracts of *acteniopetris radiata* and *caralluma adscendens* were effective against *S.typhi*, *E-coli* and *psedomonas aerugiosa* respectively, where as that both extracts of *acteniopetris radiata* exhibited most prominent activity against *S.typhi* comparable to that of chloramphenicol as standard drug. Plants selected for anti-microbial activity have shown appreciable results due to the presence of tannins, flavonoids and sterols may be responsible for the anti-microbial activity\(^{158-161}\).

*Acteniopetris radiata* and *caralluma adscendens* studies for analgesic, anti-inflammatory and anti-microbial activity has been suggested that further investigation is needed to know exactly the chemical constituents and mode of action responsible for activity.