Medicinal plants are important source of indigenous traditional medicinal system in our country. The wide spectrum of disease and resistance caused by microbes has led to research for remedy in the roots of our ancient traditional medical practices. The widespread use of herbal remedies and healthcare preparations, as those described in ancient texts such as the Vedas and the Bible, and obtained from commonly used traditional herbs and medicinal plants, has been traced to the occurrence of natural products with medicinal properties. The use of traditional medicine and medicinal plants in most developing countries, as a normative basis for the maintenance of good health, has been widely observed. Furthermore, an increasing reliance on the use of medicinal plants in the industrialised societies has been traced to the extraction and development of several drugs and chemotherapeutics from these plants as well as from traditionally used rural herbal remedies. The present research work focuses on Delonix elata and Spathodea campanulata because it has huge pharmacological properties, as used by rural communities for various treatments such as Snake bite, Head ache, Skin diseases, and Fever etc. It acts as an important fodder for livestock. Studies on antimicrobial, antioxidant, antidiabetic and phytochemical properties have not yet been carried out in these plants.
Antimicrobial activity

The antimicrobial activity was done by agar disc diffusion method for nine bacterial and two fungal strains, viz., *Staphylococcus aureus*, *Bacillus cereus*, *Streptococcus pneumoniae*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Salmonella typhi*, *Proteus vulgaris*, *Shigella flexneri*, *Aspergillus niger* and *Candida albicans*. The plant material was extracted with distilled water (aqueous) and methanol.

The preliminary screening of the methanol extracts of both the plants showed more potent than the aqueous extracts. The plant extracts were more active against gram-positive bacteria than gram-negative bacteria. The activity of aqueous and methanol leaf extracts of *D.elata* and *S.campanulata* exhibited significant activity against *S. aureus* and moderate inhibition against *P. aeruginosa*.

The most susceptible bacteria was noted as *S.aureus* for the plant extracts of *D.elata* and *S.campanulata*. For this study, it is cleared that the aqueous as well as the methanol extracts produced form the plant *D.elata* revealed the presence of more bioactive medicinal compone nts which have suppressed almost all the pathogenic bacteria and fungal used in the study than *S.campanulata*.

Silver nanoparticles

The crude extracts of both the plants were used for synthesis of silver nanoparticles. The synthesized silver nanoparticles were observed in reddish brown color. The synthesized silver nanoparticles were characterized by using FT-
IR and UV Vis analysis. FT-IR spectrum of the *D.elata* extract shows peaks at 3926.18 cm\(^{-1}\), 3786.08 cm\(^{-1}\) & 3482.14 cm\(^{-1}\) and the *S.campanulata* extract shows peaks at 3468.20 cm\(^{-1}\), 2075.79 cm\(^{-1}\) and 1637.54 cm\(^{-1}\). Among the two extracts screened, the *D.elata* synthesized silver nanoparticles revealed significant antibacterial activity against *E. coli*.

**Antioxidant activity**

In the present study, the total phenols, flavonoids, DPPH assay and reducing power assays of leaf extracts of two different species were evaluated. The extracts of both plants possess significant activity in DPPH scavenging and reducing power assays. Thus, antioxidant potential of extracts of *D.elata* and *S.campanualata* may be attributed to the presence of phenols, flavonoids and saponins.

The analysis of antioxidant properties of two different species showed that the *D.elata* exhibited higher levels of antioxidant and reducing power properties. Out of the two plant species *viz.* *D.elata* and *S.campanualata* screened for antioxidant activities, the extracts of *D.elata* containing highest amount of flavonoid and phenolic compounds, exhibited the greatest antioxidant activity.

**Anti-inflammatory & Analgesic activity**

The methanol and aqueous extracts of *D.elata* and *S.campanualata* was evaluated for their anti-inflammatory activity in carragennan induced rats. The carragennan induced rats were assigned to be treated with crude methanol and
aqueous extracts (S.campanulata and D.elata) (200 mg/kg of b.w) and untreated rats were assigned to the treated with saline.

Acute toxicity study in S.campanulata and D.elata were done in Swiss albino rats by oral administration of crude extracts of the plants in the concentration of 100 - 1200 mg/kg of body weight. The medium lethal concentration dose (LD50) of the extracts in 1200 mg/kg of the animal body weight showed no adverse effects.

The methanol and aqueous extracts of both the plants have significantly reduced the swelling level. The reduced level of swelling level in the inflammatory rats was also found to be significantly secreted after the administration of the extracts. The extracts of these plants have remarkably decreased the wrinthing after acetic acid induced rats.

**Phytochemical screening**

The plant extracts showed the presence of some secondary metabolites such as alkaloids, flavonoids, steroids, terpenoids, glycosides, saponins and phenolic compounds which were determined by the preliminary qualitative phytochemical analysis.

In conclusion, it is apparent that the pharmacological activity of D.elata and S.campanualata reflects its uses in traditional medicine. Thus, this study showed that the administration of D.elata and S.campanualata exhibited better antimicrobial, antioxidant, anti-inflammatory and analgesic activity. Further, it can be suggested that the active anti-inflammatory agents present in the
extracts can be help to overcome the infectious diseases by increasing the multi-resistant microbial pathogens. Thus, the present study concluded that there is a need of further advancement in the pharmacological investigations of the plants in the field of clinical study of inflammation is essential and encourageable.