India has a rich heritage of traditional medicine constituting with its different components like Ayurveda, Siddha, Unani, Homoeopathy and Naturopathy. Traditional health care has been flourishing in this country for many centuries (Mukherjee, 2003). In India, around 20,000 medicinal plant species have been recorded (Dev, 1997), but more than 500 traditional communities only use about 800 plant species for curing different diseases (Kondoh et al., 2002). According to the World Health Organization (WHO), 70% of Indian population extensively uses traditional and alternative medicines for health care (Narayana et al., 1998). The growing use of botanicals by the public, makes it important to evaluate the health claims of these agents and to develop standards of quality and manufacture. Herbal products are widely perceived as being safe by patients because they are considered natural. Most medications before being offered to consumers undergo rigorous evidence-based clinical testing; this is not necessarily true for herbs. Consumers regularly use these products without the knowledge of their healthcare professionals (Eisenberg et al., 1993). Due to their long historical clinical use and reliable therapeutic efficacy, traditional Indian medicine attracts an increase global attention, and many reputed pharmaceutical companies are using traditional Indian medicine as an excellent pool for discovering natural bioactive compounds. However, the characteristics of traditional Indian medicine are their systematic, multi-target and multichannel properties due to their complex chemical constituents. If only few constituents are emphasized, the holistic nature will be neglected, which needs to be studied and scientifically understood.

In this study, the phytochemical and pharmacological properties of S. interrupta was evaluated. Qualitative phytochemical screening revealed the presence of alkaloids, tannins, saponins, steroids, flavonoids, terpenoids, glycosides and phenols in the methanol, ethanol and
water extracts of *S. interrupta* leaves. The essential total phenol and flavonoid content were measured by Folin-Ciocalteau reagent and 2% aluminum chloride, respectively. The free radical-scavenging activity of the three different solvent (Water, Methanol, Ethanol) extracts and the possible mechanism involved based on the response to six different *in vitro* methods covering the major radicals, namely DPPH, ABTS, hydroxyl, nitric oxide, superoxide and APPH, were demonstrated. *S. interrupta* aqueous extracts exhibited a strong antioxidant activity in comparison with vitamin C and E against the free radicals in a dose-dependent manner. The antioxidant activity of all the extracts increased with increasing concentration and the correlation ($r^2$) for all *in vitro* assays were satisfactory. The radical quenching efficacy was well correlated with *in vitro* DNA protective activity. Finally radical quenching ability was conformed by with DNA nicking activity. Among all the extracts, all assays of water extract showed potential *in vitro* radical quenching property. In this preliminary tests, it is concluded that aqueous of *S. interrupta* may be potential therapeutic for various diseases.

The therapeutic efficacy of of *Sophora interrupta* aqueous extract was tested on cancer disease. Cancer is the major public difficulty and one of the top causes of death in the world. Conventional plants are precious source of novel cytotoxic and DNA protective agents. They are still in performance better role in health concern. Conventional plants are precious source of novel cytotoxic and DNA protective agents. They have been known to play a role in health care performances. Most of the breast cancers are known to be resistant to currently used chemotherapeutics so there is an urgent need to identify novel drugs for breast cancer. The study was intended to estimate the anticancer activity of aqueous extracts of *S. interrupta*. The breast cancer cell line MCF-7 is one of the important cell line models that was used in the present study to identify potential anti cancer activity of *S. interrupta*. 

*In vitro* cytotoxicity assay was employed to evaluate the anticancer potential of *S. interrupta* aqueous extract. The studies by MTT and LDH assays confirmed that, the cytotoxicity potential increased with increasing concentration, in a dose dependent manner. Based on the MTT assay, dose response curves were constructed between the ranges 100 µg/ml to 1000 µg/ml for *S. interrupta*. IC$_{50}$ value of *S. interrupta* on MCF-7 cell was found to be 750 µg/ml by MTT assay. These results well correlated with morphological assessment of MCF-7 breast cancer cells and the percentage of cell viability was carried out by using Tryphan blue dye exclusion method.

Morphological changes of *S. interrupta* treated MCF-7 cell nucleus and apoptotic bodies present in MCF7-cells were assessed by Hoeschest and AO-Et Br staining. Progression of membrane-bounded apoptotic bodies increased with increasing extract concentration and this was proven by DNA laddering pattern of *S. interrupta* treated MCF-7 cell. Hence, this report may serve as a stepping stone regarding the biological and pharmacological activities of *S. interrupta* leaves.

The water extracts of *S. interrupta* leaves were evaluated for their antiradical effects against cadmium nitrate induced oxidative stress in male albino rats at different doses, such as low, moderate and high doses. The acute toxicity of the water extracts of *S. interrupta* leaves were tested in rats as per the norms of Organization for European Economic Co-operation. In this pre-clinical safety evaluation, it was observed that the lethal dose (LD$_{50}$) of the extracts was greater than 2000 mg/kg and no pathological changes were observed. Also no significant change in serum and tissue biochemical components was found. The *S. interrupta* aqueous extracts did not produce any toxic effects in rats.
The \textit{in vivo} radical quenching effect of the water extracts of \textit{S. interrupta} at doses of 250-1000 mg/kg bwt, against cadmium nitrate induced hepato and nephrotoxicity was assessed with vitamin E as standard. Histological damage, activities of serum marker enzymes, levels of metabolites such as urea and creatinine, levels of tissue thiobarbituric acid reactive substances, enzymic and non-enzymic antioxidants were assayed. The cadmium nitrate induced toxicity was evident from significant increase in the serum and tissue oxidative markers in toxic rats as compared with the control. The \textit{S. interrupta} aqueous extracts pretreated rats showed significant reduction in the cadmium nitrate induced toxicity in a dose dependent manner as observed from the biochemical parameters. Biochemical and oxidative parameters observations were supported by histological examinations of liver and kidney. The crude \textit{S. interrupta} aqueous extracts lacked inherent toxicity and exhibit hepatic and nephro protective effects against cadmium nitrate induced toxicity in Wistar rats. The findings from this investigation highlight the phytochemical and pharmacological (therapeutic) importance of aqueous extracts of \textit{S. interrupta} leaves, which could serve as a source of potential antioxidant, chemo preventive, hepato and nephroprotective agents.