6. SUMMARY AND CONCLUSION

A research project entitled “Pharmacognostical, phytochemical and pharmacological evaluation of *Salvadora persica* for the treatment of lithiasis” was chosen with the objective to find out a more suitable treatment for lithiasis. Extraction of leaves of *Salvadora persica* was carried out with petroleum ether, hexane, chloroform, ethanol, and water. Compounds present in the alcoholic extract of leaves of *Salvadora persica* were isolated and characterized by using modern methods. The antilithiatic activity of leaves of *Salvadora persica* was established scientifically using ethylene glycol induced hyperoxaluria model in rats. Antilithiatic activity of β-amyrin was evaluated and compared with that of alcoholic extract of leaves of *Salvadora persica*.

As there is no record on pharmacognostical work on leaves of *Salvadora persica*, the present work was undertaken to arrive at some pharmacognostical standards. The above studies provide information in respect of their identification, chemical constituents and physico-chemical characters which are useful for pharmacognostical study and standardization of herbal drugs of folk medicinal practice of present era and enrichment of Ayurvedic Pharmacopoeia.

The leaf powder of *Salvadora persica* was extracted successively with petroleum ether, hexane, chloroform, ethanol (95%), water and extractive values were estimated.

The alcoholic (95%) and aqueous extract of leaves of *Salvadora persica* were evaluated for antilithiatic activity in ethylene glycol induced hyperoxaluria model in male Wistar albino rats. Biochemical parameters revealed that the alcoholic and aqueous extracts are having antilithiatic activity. Hence the lithnotriptic activity of leaves of *Salvadora persica* is scientifically proved. The alcoholic extract had more antilithiatic activity than the aqueous extract in the “in vivo” study both in curative and preventive regimens.

Triterpenes β-amyrin and betulin were isolated from the alcoholic extract of leaves of *Salvadora persica* by column chromatography. Since only very low quantity of betulin was present in the leaf powder only β-amyrin was evaluated for antilithiatic activity.
Antilithiatic activity was investigated for the first time using β-amyrin. The results indicated that β-amyrin was endowed with significant antilithiatic activity.

Comparison of biochemical parameters revealed that alcoholic extract of leaves of *Salvadora persica* is having more antilithiatic activity than β-amyrin.

The alcoholic extract of leaves of *Salvadora persica* significantly reduced the urinary calcium and oxalate levels, minimizing the intensity of the conditions favourable for crystallization of calcium oxalate leading to kidney stones.

The exogenous supplementation of alcoholic extract of leaves of *Salvadora persica* to hyperoxaluric rats is effective in decreasing the oxidative stress by increasing the activities of antioxidant enzymes like SOD, GPx and limiting lipid peroxidation.

The alcoholic extract was able to prevent crystal retention by averting the membrane damage induced by the calcium oxalate crystals.

The extract also had an appreciable effect on the levels of non-enzymic antioxidants GSH, vitamin C and vitamin E.

The protective action of alcoholic extract of *Salvadora persica* could be of therapeutic use to mankind for the treatment of lithiasis which can be established through scientific clinical trials.