5 SUMMARY AND CONCLUSION

Completion of any research project is beginning for another research with new objectives and dimensions. With the objective identified by reviewing the research carried on pharmacognostic, phytochemical and antifertility activity of some medicinal plants, we pursued with the work and found few interesting and promising outcome.

For the sake of brevity the results of the insignificant activity have been avoided.

The plants selected for the study are based on traditional claims and literature. The methanolic extract of roots of *S. acuta* (Malvaceae) is used for pharmacognostic, phytochemical and antifertility activity.

The physical constants showed the root of *S. acuta* contains low amount of moisture. The methanolic extract had higher extractive value as compared to other used solvents. The preliminary phytochemical investigations of pet. ether and methanolic extracts showed the presence of alkaloids, sterols, flavonoids, phenolic compounds and tannins in appreciable amount, proteins, carbohydrates and glycosides in moderate, however, saponins were absent in both the extracts.

Quantitative analysis of various constituent from methanolic extract of *S. acuta* root was done by using suitable spectroscopic models. Carbohydrate was tested by using anthrone and phenol regent methods. Protein was estimated by using Lowery method. Phenol was determined by Folin-ciocalteau reagent method. Ascorbic acid was estimated by colorimetric analysis. Tannin was estimated by Folin-Denis method.

Thin layer chromatography of methanolic extract was done by using two solvent systems and one visualizing agent. Result of first solvent system was (CHCl₃: MeOH, 4:1) shown nine spots and second (CHCl₃: MeOH: NH₃, 5:5:0.3) was shown six spot. Column chromatography was performed by using methanolic extract. The solvent used successively starting from pet. ether to methanol by increasing polarity.

This work has been able to establish the pharmacognostic standards for a genuine sample of *Sida acuta*. Establishing standards is an integral part of establishing the correct identity and quality of a crude drug. Before any drug can be
included in the Pharmacopoeia these standards must be established. A drug claimed to be similar to *Sida acuta*, but whose characters significantly deviate from these reported values should be regarded as either a substituted, contaminated or adulterated sample.

The extract has shown significant antiimplantation activity when it was administered from days 1 to 7. Methanolic extract at both the doses (200 and 400 mg/kg) showed significant antiimplantation activity.

It is well known that, implantation sustains at exact equilibrium of estrogen and progesterone. Any disturbances in levels of these hormones cause infertility. Literature reveals that, components such as aromatic acids, phenolic compounds, sterols and other compounds like hetrosides, e.g. globularin have reported antiimplantation activity. Therefore, the anti-implantation effects observed in the present study could be due to one or more of the active constituents present in the extract. In fact, it is well known that estogenic substances inhibit pregnancy by suppressing the level of both follicular stimulating hormone (FSH) and luteinizing hormone (LH), which in turn prevent the implantation.

From our results, it is evident that the extract inhibited implantation when given at the zygotic stage days (1-3) and the blastocyst stage (days 3-5) similar activity was reported in many plants. The probable mechanism of action may be due to imbalance between the hormonal levels at zygotic and blastocyst stages.

Abortion refers to the premature expulsion of the products of conception from the uterus. It may be due to maternal exposure to phytochemicals, which can disrupt pregnancy and cause detachment of the embryo. The extract has shown significant abortifacient activity. The review of literature suggests that the presence of phytosterols and polyphenols in the plant under study could be responsible for the abortifacient effect.

In conclusion, the methanolic extract of *S. acuta* exhibited potent antiimplantation, abortion and reduction in sperm motility. Thus the scientific validation for the traditional claims for antifertility use of plants is justified. Further studies are needed to explore the possible mechanism of claimed actions of this plant and isolation of the individual compounds confirming the pharmacological activity.