SUMMARY
The present work entitled "Toxicological and Haematotoxic activity of Abrus precatorius on Albino rats, (Rattus norvegicus)" is an experimental study on evaluation of nephrotoxic effects of chloroformic extract and its eluted fractions which have shown having antifertility potential on male albino rats. Previously the contraceptive and hepatotoxic effect of chloroformic extract and its eluted methanolic and aqueous fractions were studied in this laboratory which showed encouraging results. Thus, the studies on toxic effect of this plant on renal tissue and blood of albino rats were done in the present work.

The extracts were administered orally to sexually mature male albino rats, in 20mg/rat/day for chloroformic and 2 mg/rat/day for eluted methanolic and aqueous fraction doses. A control group was also maintained throughout the study under controlled laboratory conditions. This group received only vehicle along with normal diet. At predetermined intervals, i.e. after 15 days and 30 days of treatment, the experimental as well as control animals were sacrificed under general anesthesia and the histological changes in kidney and blood biochemistry and haematological changes were observed. These data was subjected to statistical analysis.
In histological studies, the main aim was to observe changes in the elements of kidney. The purpose of biochemical studies were done to monitor the metabolic state of blood tests during the treatment with chloroformic extract and its eluted alcoholic and aqueous fractions.

The first chapter of the thesis embodies the introduction of the present study along with its social and national relevance.

Available literature has been reviewed in the second chapter. This review has been divided into two divisions-

(a) Effect of chemicals & pesticides on kidney and blood.

(b) Effect of plant herbs on kidney and blood.

The third chapter deals with the collection of material and the techniques employed during the course of study. It includes preparation of chloroformic extract of the plant material. The different fractions, viz. methanolic and aqueous were eluted separately by column chromatography, dried under reduced pressure and used after making required doses in olive oil, selection and acclimatization of experimental animals under laboratory condition, administration of doses, collection and preparation of tissues for histological studies, biochemical and haematological studies, preparation of various reagents for histological and biochemical studies with details of techniques used for estimation of various parameters have been discussed.
The fourth chapter describes the various observations during the present study. The observations were made under the following heads:

1. The histology of renal tissue and histological changes in kidney of rats treated with chloroformic extract and with eluted methanolic and aqueous fraction of *Abrus precatorius* seeds.

2. Biochemical changes in blood of rats treated with chloroformic extract and with eluted methanolic and aqueous fractions of *Abrus precatorius* seeds.

3. Haematological changes in blood of rats treated with chloroformic extract and with eluted alcoholic and aqueous fraction of *Abrus precatorius* seeds.

All the doses of *Abrus precatorius* seeds did not have any adverse effect on general health except some nasal discharge for a few days which disappeared later on. All the doses do not cause any harmful effect on general health, histology, biochemistry of blood and haematology.

1. **Effect of Chloroformic extract of *Abrus precatorius* seeds**

Animal were administered with 20mg/rat/day for 15 and 30 days of treatment.

Histological studies revealed no degeneration in kidney. The glomerulus, Bowman’s capsule, proximal convoluted tubules, distal
convoluted tubules and the collecting ducts were observed to be normal. The ducts of Bellini and loop of Henle were normal. No infiltrations of cells were observed in kidney of any of the experimental animals.

The bilirubin, creatinine, urea, SGOT, SGPT, acid and alkaline phosphatase in blood showed no significant changes in animals which indicate no renal toxicity on administration of the chloroformic extract.

The Hb%, RBCs, WBCs, ESR, CT, PT, PCV%, MCV, MCH, and MCHC in blood also showed no significant changes in animals which indicates no toxic effect in administration of the chloroformic extract.

2. **Effect of eluted methanolic fraction of Chloroformic extract of Abrus precatorius seeds.**

Animal were administered with 2mg/rat/day for 15 and 30 days of treatment.

(a) Histological studies revealed no changes in kidney. The Glomerulus was normal in size, no swelling and formation of tumors or degeneration of cells was observed. Bowman’s capsule was normal in shape and size. No change was observed in cortical renal veins (CRV). Proximal convoluted tubules were normal and brush border cells were normal in shape and number. No change was observed in renal papilla (Pelvis) shape and size. Duct of Bellini were normal in shape and size. No oedematous fluid was visible. No changes were observed in loop of henle, collecting tubules, collecting duct, ascending limb, thin limb and vasa recta.
(b) The bilirubin, creatinine, urea, SGOT, SGPT, acid and alkaline phosphatase in blood showed no renal toxicity in animals on administration of the eluted methanolic fraction of Chloroformic extract of *Abrus precatorius* seeds.

(c) The Hb\%, RBCs, WBCs, ESR, CT, PT, PCV\%, MCV, MCH, and MCHC in blood also showed no toxic effect in animals on administration of the eluted methanolic fraction of Chloroformic extract of *Abrus precatorius* seeds.

3. **Effect of eluted aqueous of Chloroformic extract of *Abrus precatorius* seeds.**

Animal were administered with 2mg/rat/day for 15 and 30 days of treatment.

(a) Histological studies revealed no changes in kidney. The afferent arteriole normal in shape and size no malformation was seen. Normal layer of flattened squamous cells was observed no hyper or hypotrophy of cells was observed. Glomerulus was normal in size, no swelling and formation of tumors or degeneration of cells was observed. Bowman’s capsule was normal in shape and size. No change was observed in cortical renal veins. Proximal convoluted tubules were normal and brush border cells were normal in shape and number. No change was observed in renal papilla (Pelvis) shape and size. Duct of Bellini are normal in shape and size. No
oedematous fluid was visible. loop of Henle was normal. No changes were observed in collecting tubules, collecting duct, ascending limb, thin limb and vasa recta.

(b) The bilirubin, creatinine, urea, SGOT, SGPT, acid and alkaline phosphatase in blood showed no significantly changes in animals which indicate no renal toxicity on administration of the chloroformic extract.

(c) The Hb%, RBCs, WBCs, ESR, CT, PT, PCV%, MCV, MCH, and MCHC in blood observed no significant changes in animals which indicate no toxic effect on administration of the chloroformic extract.

6. The fifth chapter deals with the comparison of the present observation with those of earlier workers in order to derive at a suitable conclusion. The observation with chloroformic extract and eluted aqueous and methanolic fraction of Abrus precatorius seeds strongly contradict the observations of several workers who have reported the seeds of this plant to be highly poisonous but no lethal effect was observed during the present work. This discrepancy can be due to the fact that the plants growing in different regions and the variation in the time of collection of the specimen (herbs) shows variation in the alkaloids present in them. Since the evaluation of alkaloids was not included in the present work, therefore the reason
for this variation requires further investigation. Moreover, the procedure used to prepare the extract, probably caused degradation of abrin, the toxic alkaloid present in seeds.

The chloroformic extract and its eluted fractions of the plant, i.e. *Abrus precatorius* seeds were effective spermicidal agent as per our previous studies. These observations support our view that none of plant extract is toxic.

The chloroformic extract and its eluted fractions of the plant, i.e. *Abrus precatorius* seeds were effective spermicidal agents and no hepatotoxic effect studies. These observations support our view that none of plant extract is toxic for the development of suitable male oral contraceptive.

The chloroformic extract and its eluted fractions of the plant, i.e. *Abrus precatorius* seeds caused no abnormal decrease or increase in haematological components in blood showing normal functioning of kidney.

The work presented in this thesis justifies the efficacy of *Abrus precatorius* which has no adverse side effect on kidney and recommended for the purpose, subjected to further research and clinical trials.

7. The conclusions drawn from the study have also been presented in the thesis. The chloroformic extract and its eluted aqueous and
methanolic fraction of *Abrus precatorius* seed no toxic effects of kidney histology, biochemical of blood and haematology of blood.

8. The thesis concluded with summary of the entire work conducted in brief and a bibliography which is consulted for carrying out the entire piece of work. The text is duly supplemented with 18 tables and graphs, 21 well illustrated photograph and reprint of research paper published by the candidate.