Summary
SUMMARY

The PLA₂S contribute significantly to diverse effects of snake venom toxicity. They occur invariably in multimolecular forms in most of the snake venoms, their contribution to the toxicity of venom can be of individual or in combination with peptide, or with other protein present in the venom. In the Russell’s viper \textit{(Daboia russelii)} venom several PLA₂ isoforms have been isolated and characterized. The investigations have revealed that the PLA₂S in the venom target vital organs Eg. VRV-PL-V: Neurotoxic, VRV-PL-VI: Hemorrhage in pituitary and thyroid, VRV-PL-VIII: Lung hemorrhage.

In the first chapter of the thesis extensive literature survey on snake venom components has been reviewed. The biochemical and pharmacological properties, updated classifications of venom PLA₂S are described in depth. Contribution of understanding normal physiological function and developing drugs is revealed. The available medicinal cures with special emphasis on immunological approaches to neutralize the toxic effects of snake venom have been highlighted. Finally this chapter ends with the aim and scope of the present investigation.

In the second chapter of the thesis we show the existence of complex (Reprotoxin) of PLA₂ with other venom proteins that specifically targets the reproductive organs in mice. Third chapter explains histopathology of the testis and is followed along with biochemical studies to support the reproductive toxicity of the Reprotoxin in mice. Fourth chapter explains the isolation, purification and comparative biochemical and pharmacological characterization of PLA₂ isoforms-VRV-PL-IIIc; VRV-PL-VII, and VRV-PL-IX, followed by references listed at the end.

The significant outcome of the investigation have been

1. Isolation of novel PLA₂, Protease and trypsin inhibitor peptide containing toxic complex “Reprotoxin” from the \textit{Daboia russelii russelii} venom.
2. Demonstration of reproductive toxic effect by Reprotoxin in male and female reproductive organ.
3. Isolation, biochemical and pharmacological characterization of PLA₂ isoforms from the *Daboia russelii* venom (western, India) and comparatively characterize with other regional *D. russelii* venom PLA₂s.

4. Demonstration of mode of neurotoxic effect induced by PLA₂s in NMDA and non-NMDA mediated neurotransmission in mouse hippocampal neuronal cells.