CHAPTER 7

SUMMARY
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The neurotoxicological study of the three plants comprising of behavioural study, biochemical assays, Electron microscopy has been summarized.

In this study the plant *Alstonia scholaris* was found to be neurotoxic. It was found that the plant creates CNS depression and sedative behavior in mouse model. *A. scholaris* extract produced oxidative stress in mice brain. There was increase in brain cell death in the treated mice. Transmission Electron Microscopy showed ultrastructure damage in the mitochondria and nuclear membrane of the treated mice cerebral cortex as compared to that in the control. The Nimodipine treatment decreased the neurotoxicity in *Alstonia scholaris* treated mice.

*Thevetia peruviana* was also found to be neurotoxic. It was found that the plant creates CNS depression and sedative behavior in mouse model. In biochemical tests it showed oxidative stress and there was increase in brain cell death in the treated mice. There was moderate attenuation of neurotoxicity by nimodipine in the *Thevetia peruviana* treated mice.

*Semecarpus anacardium* was also found to be neurotoxic in our study. It was found that the plant creates CNS depression and anxiety in mouse model. It was found to create oxidative stress along with marked cell death in the mice brain. Transmission Electron Microscopy showed ultrastructure damage in the mitochondria and nuclear membrane of
the treated mice cerebral cortex as compared to that in the control. There was moderate attenuation of neurotoxicity by nimodipine in the Semecarpus anacardium treated mice.

The plant extracts showed antimicrobial property for the various microbes studied.

The present study emphasizes that the various plants studied namely Alstonia scholaris, Thevetia peruviana and Semecarpus anacardium possess neurotoxicity and also produces neurobehavioural changes in mice. This is a cause of concern as these plants are widely used as medicine. It is important to use these plants carefully by making proper preparation so that its neurotoxicity can be avoided. This requires further study so that detail mechanisms by which these plants causes neurotoxicity is determined.