CHAPTER 7

CONCLUSION

Hepatocellular carcinoma (HCC) is one of the common cancers in the world. The most important part is the evolution of experimental hepatocarcinogenesis and its importance as an animal model in treatment of disease relating to human efficacy. The promoter which is as important as carcinogen which boost the process of malignancy and decrease the latency period of occurrence of malignancy. NDEA and CCl₄ is been widely used as a study for chemical induced hepatocellular carcinoma and its mechanism of action is also well illustrated. Based on this, potentiation of plant for the treatment of dreaded disease like cancer may shows a ray of light for better protocol for further treatment of hepatocellular carcinoma. Recent studies on tumour inhibitory compounds of plant origin have yielded an impressive array of research on medicinal plant.

In the acute toxicity study, FIE and TPE produced neither mortality nor changes in behavior in mice. In subacute toxicity study, FIE and TPE did not produce any significant difference in their body weight, food consumption and water intake, hematological and biochemical parameters in experimental groups of rats. Histopathological study revealed normal architecture of kidney and liver of FIE as well as TPE treated rats. These finding demonstrated that there is a wide margin of safety for the therapeutic use of *Fumaria indica* and *Tephrosia purpurea*. Thus further corroborated the traditional use of these extract as an anti hepatocarcinogenic agent.

The efficacy of *Fumaria indica* and *Tephrosia purpurea* in experimental liver cancer described in the present investigation offer the potential for reaching on understanding of anticancer potency. The administration of *Fumaria indica*, *Tephrosia purpurea* extract and Silymarin
show the rehabilitating capability of extracts in respect with anticancer potency in comparison with the standard drug Silymarin.

These finding suggested that the oral administration of *Fumaria indica* and *Tephrosia purpurea* possesses antihepatocellular carcinoma activity as evidenced by the significant and dose dependent restoring the activities of entire liver cancer marker enzymes, diminution in tumor incidence, decrease in lipid peroxidation (LPO) and increase in the level of antioxidant enzymes (GSH, CAT, SOD, GPx and GST) through scavenging of free radicals, or by enhancing the activity of antioxidant, which then detoxify free radicals. These factors protect cells from ROS damage in NDEA and CCl$_4$-induced hepatocarcinogenesis. Histopathological observations of liver tissues too correlated with the biochemical observations. Thus, present investigation suggested that the *Fumaria indica* and *Tephrosia purpurea* would exert a chemoprotective effect by reversing the oxidant-antioxidant imbalance during hepatocarcinogenesis induced by NDEA and CCl$_4$. Besides *Tephrosia purpurea* is very much effective in preventing NDEA-induced multistage hepatocarcinogenesis possibly through antioxidant and antigenotoxic nature, which was confirmed by various liver injury and biochemical tumour markers enzymes.

These observations and description of mechanism of *Fumaria indica* and *Tephrosia purpurea*, which interplay with cancer biology and pharmacology lead to rapid development in cancer treatment. In addition to this, studies on molecular aspect of cancer therapy will give mechanistic information in cancer therapy and also critical balance should be there between the animal model and clinical research. This holds great promise for future research in human beings. The anticancer properties of *Fumaria indica* and *Tephrosia purpurea* should provide useful information in the possible application in cancer prevention and cancer therapy.