SUMMARY
Chapter I

INTRODUCTION

In the introductory chapter the topic “The effect of curcumin on the primary antioxidant status and mixed function oxygenase enzyme system during cholanthrene induced carcinogenesis” is introduced with emphasis on relationship of curcumin with antioxidant scavenging, peroxidation of lipid and an effective functional state of mixed function oxygenase enzyme system during cholanthrene induced carcinogenesis. The aims, objectives and plan of the study are systematically presented.

Chapter II

REVIEW OF LITERATURE

This chapter deals with the general review of literature on curcumin, antioxidant enzymes and cancer, mixed function oxygenase enzymes and cancer, and review on 3-methylcholanthrene with bibliographical records.

Chapter III

MATERIALS AND METHODS

This chapter includes the plan of study dividing the test animals into normal, control and experimental groups and materials required for
evaluation of various parameters. The methods for evaluation of different biochemical parameters – superoxide dismutase (SOD), glutathione peroxidase (GPx), catalase (CAT), cytochrome P450, xanthine oxidase (XOD), aryl hydrocarbon hydroxylase (AHH), lipid peroxide (LPO) and alpha - fetoprotein (AFP) are selected as probe for the study. The study of these parameters have been done at fifteen different days interval for a period of 120 days on blood and four different days interval for a period of 120 days on three different tissues like liver, stomach and kidney.

Chapter IV

EFFECT OF CURCUMIN ON ANTIOXIDANT ENZYMES DURING CHOLANTHRENE INDUCED CARCINOGENESIS

The effect of curcumin with a daily dose of 10mg, along with single dose of 3MC (0.5mg) upto 120th day of experiment on three antioxidant enzymes i.e. superoxide dismutase (SOD), glutathione peroxidase (GPx) and catalase (CAT) in blood and the activity of catalase (CAT) in three different tissues - liver, kidney and stomach over a period of 120th days have been studied. This chapter includes an introduction to the subject, materials and methods used, results with statistical analysis and graphical representation and interpretation of the results with supported bibliography.

Significant decrease of antioxidant enzyme activity is observed with single dose administration of 3MC, which is however, observed to be increased with simultaneous administration of dietary curcumin.
Chapter V

EFFECT OF CURCUMIN ON MIXED FUNCTION OXYGENASE ENZYME SYSTEM DURING CHOLANTHRENE INDUCED CARCINOGENESIS.

In this chapter the effect of curcumin with daily dose of 10mg along with single dose of 3MC (0.5mg) upto 120th day of experiment on mixed function oxygenase enzyme i.e. cytochrome P450, aryl hydrocarbon hydroxylase (AHH), and xanthine oxidase (XOD) in three different tissues - liver, kidney and stomach have been studied. This chapter includes an introduction to the subject, materials and method adopted for evaluation, results with statistical analysis and graphical representation. The analysed results are interpreted and correlated with the literature available.

On single dose administration of 3MC, the three mixed function oxygenase enzymes are observed to be significantly increased, however, the enzymes activities are found to be decreased with simultaneous treatment of curcumin.

Chapter VI

EFFECT OF CURCUMIN ON LIPID PEROXIDE DURING CHOLANTHRENE INDUCED CARCINOGENESIS

The effect of curcumin with daily dose of 10mg along with single dose of 3MC (0.5mg) upto 120th day of experiment on lipid peroxide on
blood and three different tissues – the liver, kidney and stomach have been studied in this chapter. It includes introduction to the topic, materials and methods used for the study, results with statistical analysis and interpretation of the results with the literature available.

Significant increase in lipid peroxide content in both blood and tissues are observed on administration of 3MC alone. But, simultaneous treatment of curcumin is observed to depress significantly the lipid peroxide content.

Chapter VII

EFFECT OF CURCUMIN ON ALPHA-FETOPROTEIN DURING CHOLANTHRENE INDUCED CARCINOGENESIS

The effect of curcumin with daily dose of 10mg along with single dose of 3MC (0.5mg) on cancer marker alpha-fetoprotein (AFP) upto 120th days of experiment has been studied in this chapter. This chapter includes an introduction to the subject, materials and method used, results with statistical analysis and graphical representation, interpretation of results with supported bibliography.

Increase of alpha-fetoprotein content is observed with single dose administration of 3MC, however, in the initial period of the experiment no marked inhibition is observed in the increase of alfa-fetoprotein content but on continuous presence of curcumin with pre-exposure of 3MC, alpha-feto protein content is significantly decreased by curcumin.
Chapter VIII

GENERAL DISCUSSION

This chapter presents a comprehensive and correlative interpretation of the topic studied and presented in the thesis. The observations, interpretation and the discussed matters in different phases of the present study presented in the foregoing chapters of the thesis is discussed as an unified entity with an aim to present a logical and deductive information of the topic "The effect of curcumin on the primary antioxidant status and mixed function oxygenase enzyme system during cholanthrene induced carcinogenesis".