

In summary, the findings of the present study indicate that total triterpenes from *G. lucidum* is an excellent antioxidant and is capable to defend well against inflammation and arthritis. The total triterpenes possessed good antitumor and apoptotic activity against various tumor and cancer cell lines and showed significant anticancer activity against DMBA induced mammary and skin tumor. *Ganoderma* terpenes also exhibited significant protection to normal cells against radiation induced oxidative stress as well as DNA damages indicating its genoprotective activity. The findings reveal the potential therapeutic use of this mushroom derived component as a genoprotective and anticancer agent.

The thesis has been divided into following 10 chapters:

Chapter 1: Review of literature

Chapter 2: Materials and methods

Chapter 3: Isolation of total triterpenes from *Ganoderma lucidum*

Chapter 4: Antioxidant activity of total triterpenes

Chapter 5: Anti-inflammatory and anti-arthritic activity of total triterpenes

Chapter 6: Anti tumor and apoptotic effect of total triterpenes on various tumor and cancer cell lines

Chapter 7: Anti carcinogenic activity of total triterpenes

Chapter 8: Effect of total triterpenes on radiation induced oxidative damage and genotoxicity

Chapter 9: Effect of total triterpenes against radiation induced DNA damage and apoptosis in splenic lymphocytes *in vitro*

Chapter 10: Toxicity studies of total triterpenes isolated from *Ganoderma lucidum*

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