

***In vivo* Antioxidant activity and hepatoprotective effects of methanolic extract of *Mesua ferrea* linn**

Sandeep Garg¹, Kameshwar Sharma¹, Rajeev Ranjan¹, Pankaj Attri² and Parshuram Mishra^{2*}

¹Department of Zoology, University of Delhi, Delhi, India-110007

²Department of Chemistry, University of Delhi, Delhi, India-110007

*E-mail- gsk185@gmail.com

Abstract: Study was carried out to evaluate the antioxidant activity of dried flower methanolic extract of *Mesua ferrea* in male Wister rat. Methanolic extract of *Mesua ferrea* linn was taken in 3 graded doses (50, 100, and 200 mg/kg of BW) and were evaluated for their antioxidant activity and hepatoprotective effects. Rats were artificially inoculated with *Staphylococcus aureus* (ATCC 43300) in drinking water on the onset of experiment. After 24 h of bacteria inoculation, the methanolic extract was administered daily for 1 week. After 1 week, rats were sacrificed for their liver. The effect of *Mesua* extract was studied on antioxidant profile of liver. ALT, AST, CPK, Creatinine and urea profile were analyzed with standard procedures. Administration of *Mesua ferrea* flower extract in all the doses caused a significant increase in biochemical parameters and posed a hepatoprotective effect however in 100 mg/kg of BW, the effect was significant. CAT, SOD, GPx, and GR were measured for evaluation of antioxidant activity and found significantly higher activity in *Mesua* fed rats than control. AAT and AST showed a significant decrease in *Mesua* fed groups of Wister Rats. This investigation demonstrated the potent antioxidant activity of *Mesua ferrea* flower extract.

Keywords: *Mesua ferrea*, enzymatic antioxidants, Catalase, Superoxide dismutase, Glutathione reductase, Glutathione peroxidase.

Introduction

Plant derived natural products have received considerable attention in recent years due to their diverse pharmacological properties including antioxidant activity. Antioxidants play an important role in inhibiting and scavenging radicals, thus providing protection to humans against infection and degenerative diseases. There is a growing interest in the pharmacological evaluation of various plants used in Indian traditional system of medicine. *Mesua ferrea* belonging to family Clusiaceae commonly called Ceylon ironwood, Indian rose chestnut, Cobra's saffron or Nagkesar. The plant is named after the heaviness of its timber and cultivated in tropical climates for its form, foliage and fragrant flowers. It is native to tropical Sri Lanka but also cultivated in Assam, in southern Nepal, in Indochina and the Malay Peninsula. The seed oil of this tree found to be astringent, digestant, anti poisonous, antimicrobial, anti-inflammatory, antipyretic and anthelmintic in many cases. In India, it is known for its use in fever, itching, nausea, leprosy, skin disorders, erysipelas, bleeding piles, metrorrhagea, menorrhagea, excessive thirst, and sweating.

The use of herbal extracts, particularly as adjuvants, to control and prevention of stressed environmental conditions and other infections holds great promise (Chatterjee et al. 1998). Significant interest has now been generated in research on bioactive molecules from plants designated as stimulatory and immunomodulatory agents in alternative systems of medicine (Lee et al. 1995). Compounds like polysaccharides, saponins, phenols and alkaloids (Ingolfssdottir et al. 1994) have been tested for their utility as both biological and chemical markers and used as therapeutically active marker compounds. Bhide and Naik (1979) have reported that the phenolic constituents of the seed oil of *Mesua ferrea* have powerful antiasthmatic effect. *Mesua ferrea* flowers are well known for their antiasthmatic effects. In present study we have extracted dried flowers of *Mesua ferrea* in methanol. This extract was checked for its antioxidant effects and hepatoprotective effects. The extract was found to be a potent antioxidant with significant hepatoprotective effects.