



INTERNATIONAL JOURNAL OF ADVANCES IN PHARMACY MEDICINE AND BIOALLIED SCIENCES

An International, Multi-Disciplinary, Peer-Reviewed, Open Access, Triannually Published Journal
| www.biomedjournal.com |



Antioxidant and hepatoprotective activity of *Murraya koenigii* L. against CCl₄-induced hepatotoxicity in rats

Javed Akhtar Ansari^{1*}, Syed Abrarul Haq², Mirza Anwar Baig³, Abu Sufyan Shaikh³.

¹Department of Pharmacology, MESCO College of Pharmacy, Hyderabad, TS, India.

²Department of Pharmacology, Nimra College of Pharmacy, Ibrahimpatnam, Vijayawada, India.

³School of Pharmacy, Anjuman-I-Islam's, Kalsekar Technical Campus, New Panvel, M.S., India.

ORIGINAL RESEARCH ARTICLE

ABSTRACT

ARTICLE INFORMATION

Article history

Received: 10 March 2015

Revised: 10 April 2015

Accepted: 12 April 2015

Early view: 20 April 2015

*Author for correspondence

E-mail: javed.ansari47@gmail.com



Q
R

C
o
d
e

Background: Liver disease is one of the global medical problems which cause significant morbidity and mortality. In present study, hepatoprotective and antioxidant property of methanolic extract of *Murraya koenigii* L. (Rutaceae) were investigated in CCl₄ induced hepatotoxicity in rats.

Material and methods: Hepatotoxicity was induced by CCl₄ (2 ml/kg, i.p.) and silymarin was used as a standard drug. Before CCl₄ intoxication, rats were treated with methanolic extract of *Murraya koenigii* L. at a dose of 50, 100 and 200mg/kg once day for 14 days. Treatment with a methanolic extract of *Murraya koenigii* L. showed significant hepatoprotective activity in CCl₄ intoxicated rats which were indicated by reduction in the level of marker of hepatotoxicity. Treatment also showed significantly decreased in hepatic lipid peroxidation and a corresponding increase in tissue antioxidant enzyme.

Result: The results of present study demonstrate the hepatoprotective activity of methanolic extract of *Murraya koenigii* L. against CCl₄-induced hepatotoxicity in rats which might be due to its anti-oxidant activity.

Conclusion: It suggests a potential therapeutic use of *Murraya koenigii* L. in treatment of acute liver diseases and oxidative stress.

Keywords: Liver damage; hepatoprotective effect; antioxidant effect; *Murraya koenigii* L.

Biomedjournal © Copyright 2015, All rights reserved. Biomedjournal Privacy Policy.

DOI: 10.5281/zenodo.16951515

INTRODUCTION

The liver is a major organ which plays an important role in synthesis, secretion, metabolism of xenobiotics and elimination and detoxification of drugs. Liver damage characterized by jaundice, cholestasis, liver enlargement, portal hypertension, esophageal varices, ascites, liver encephalopathy and liver failure which may be due to alcohol consumption, infection, malnutrition, anaemia, xenobiotics and medication. It is one of the global medical problems with significant morbidity and mortality (Ansari et al., 2013).

Reactive oxygen species and reactive nitrogen species also known as free radicals are produced in a cell as a result of normal metabolic reaction (Ansari et al., 2012). Mammalian cells contain endogenous antioxidant enzymes, including superoxide dismutase (SOD), glutathione peroxidase and catalase which neutralize excess of free radical and protect the cell from damage. But when level of antioxidant and free radical is imbalance due to endogenous or exogenous cause, it

produces oxidative stress where available quantity of antioxidant is insufficient to neutralize free radical (Saeed et al., 2005).

In spite of increased incidence of liver transplantations and death due to liver damage, none of modern medicine available today showed alleviation of liver diseases which further demand investigation for new and effective treatment. A large number of medicinal plants species and their products have been reported as potential therapeutic agents for liver disease (Ansari and Rashid, 2012). *Murraya koenigii* L. (Rutaceae) is a small spreading shrub, about 2.5 meters in height widely used as a spice for its characteristic flavor and aroma. It is reported to possess antibacterial, antidiabetic, antiulcer, antiinflammatory, wound healing, enzyme inhibiting, antioxidant, antidysenteric, anticarcinogenic activity (Vaibhav et al., 2011; Muthumani et al., 2010; Indu and Menon, 2010). Several study suggested that hepatoprotective effects of plant extracts are associated