



RESEARCH ARTICLE

COMPARATIVE EVALUATION OF SOME INDIAN MEDICINAL PLANTS FOR THEIR ANTIULCER POTENTIAL IN MALE WISTER RAT

*Saurabh Dubey

Shambhunath Institute of Pharmacy, Jhalwa, Allahabad, U.P., India

Received 05th January, 2018; Accepted 24th February, 2018; Published Online 30th March, 2018

ABSTRACT

This study was aimed to elucidate the anti-ulcer effect of five Indian medicinal plants – *Jatropha curcas*, *Cassia fistula* (Amaltas), *Catharanthus roseus*, *Murraya koenigi*, *Tamarindus indica* (Imli). 36 male wister rats weighing 180 to 200g were used in this study which were divided into six groups each group containing six rats (n=6). The ulcer was induced in fasting rats by the administration of absolute ethanol. The animals were sacrificed and the stomach was cut open along the greater curvature for the analysis of ulcer score and ulcer index. The methanolic leaf extracts of selected plants was prepared and their fixed doses were given to the test animals for the comparative analysis. The result shows that the methanolic leaf extracts of *Murraya koenigi*, *Catharanthus roseus*, and *Tamarandus indica* have gastroprotective and anti-ulcer properties.

Key words: *Jatropha curcas*, *Cassia fistula*, *Murraya koenigi*, *Tamarandus indica*, Anti-ulcer, Ulcer score, Ulcer index.

Copyright © 2018, Saurabh Dubey. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Saurabh Dubey. 2018. "Comparative evaluation of some indian medicinal plants for their antiulcer potential in male wister rat" *International Journal of Current Research in Life Sciences*, 7, (03), 1374-1375.

INTRODUCTION

Herbal drugs are used for primary health care, not only in rural areas of developing countries, but also in developed countries as well. Herbal medicines are used by 60% of world's population. Plants have evolved the ability to synthesize chemical compounds that help them defend against attack from wide variety of microorganisms, insects and animals. Some of these compounds whilst toxic to plant predators and microorganisms turn out to have beneficial effects when used to treat human diseases. The peptic ulcer or gastric ulcer is a wide spread chronic disorder responsible for the high rate of mortality and morbidity worldwide. The term Ayurveda comes from the Sanskrit root 'Au' means life and 'Veda' means knowledge. As the name implies it is not only the science of treatment of illness but covers the whole gamut of happy human life involving the physical, metaphysical and the spiritual aspects, Joy *et al.*, (1998) and Samy *et al.*, (2008). About 8,000 herbal remedies have been codified in Ayurveda, which helps the patient's to lead a disease free life, Jawla *et al.*, (2009). Ayurvedic preparations are a mixture of several constituents and active principles that are responsible for pharmacological activity while in modern medicine single active entity was responsible for therapeutic activity. Therefore, isolation of active principles form herbal and rural formulation and then their pharmacological screening is the absolute need of time.

It is now desirable to evolve out new technology and approaches which may helpful in understanding of ancient pharmacology according to recent advancement. The incidences of peptic ulcer and gastritis are increasing day by day because majority of population living in urban areas of India faces certain risk factors like unhygienic diet, working stress, high population, and consumption of junk food, alcohol, consumption of unprescribed drugs. Various synthetic drugs are available for the treatment and management of peptic ulcer, but due to their associated contraindications and cost factors, herbal drugs can be a better choice. The present study will encourage investigators and physicians for further investigations on more wild plant extracts for the proper management of this disorder.

MATERIALS AND METHODS

Collection of leaves of selected plants: The leaves of selected plants were collected from Utthan nursery, Jhalwa, Allahabad.

Preparation of leaf extract: The leaves of the selected plants were air dried and grounded into coarse powder. The powder was weighed and the methanolic extracts were prepared using Soxhlet extractor. The extracts were concentrated using Rota-evaporator to dryness to obtain methanolic extracts.

Animals and Grouping: 36 male wister rats weighing 180 to 200g were used in the study which were divided into six groups, each group containing six rats (n=6). The animals were kept in fasting condition for an overnight with free access to

*Corresponding author: Saurabh Dubey,
Shambhunath Institute of Pharmacy, Jhalwa, Allahabad, U.P., India

water before experiment. The ulcer was induced in the rats of selected groups by oral administration of 1ml of absolute ethanol. After one hour of ethanol administration, the rats were sacrificed for examination.

The rats were divided into following groups

Group-1- Control group, orally administered with absolute ethanol, but not treated with any drug.

Group-2- Standard group, in which the rats were treated with standard drug.

Group-3- Group of rats treated with *Jatropha curcas* methanolic leaf extract.

Group-4- Group of rats treated with *Cassia fistula* leaf extract.

Group-5- Group of rats treated with *Catharanthus roseus* leaf extract.

Group-6- Group of rats treated with *Tamarandus indica* leaf extract.

Acute toxicities

Acute toxicity was carried out according to guidelines set by Organization for Economic Co-operation and Development (OECD) 423. The methanolic extracts was suspended in saline and different doses orally administered and the animals were kept under observation for few hours for general, behavioral, neurological and autonomic profiles and finally till death after 24 hours.

a) Ulcer score

The following arbitrary scoring system was used to grade the incidence and severity of lesion, Kulkarni (2002).

Normal stomach.....	0
Red coloration.....	0.5
Spot ulcer.....	1.0
Hemorrhagic streak.....	1.5
Ulcers.....	2.0

b) Ulcer Index

Mean ulcer score for each animal is expressed as Ulcer Index, Kulkarni (2002).

c) Percentage protection

The percentage of ulcer protection was determined by, Patidar (2011)

$$\% \text{ protection} = \frac{\text{Control mean ulcer index} - \text{Test mean ulcer index}}{\text{Control mean ulcer index}} \times 100$$

RESULTS AND DISCUSSIONS

The results led to the conclusion that the leaf extracts of *Catharanthus roseus*, *M. koenigi* and *Tamarandus indica* exhibited a significant anti-ulcer activity in experimental animals. The difference in the evaluated activity could be due to the number /quantity of phytoconstituents present in these extracts. The present study can be beneficial for the physicians who are treating Peptic ulcer and gastritis. By the knowledge of efficacy of various plant extracts, the physicians can manage this disorder in a better way in rural and poor populations.

REFERENCES

- Ahamad Nisar, Fazal Hina, Haider Bilal, Abbasi. 2010. Efficient Free Radical Scavenging Activity of Ginkgo biloba, Stevia rebaudiana and Parthenium hysterophorus Leaves through DPPH. 2(3).
- Ahirrao, R. A., Patel, M. R., Pokal, D. M., Patil, J. K., Suryawanshi, H. P. 2011. Phytochemical screening of leaves of *Jatropha curcas* plant. 2(4). 1324.
- Ahsan, Rajib, Islam, Monirul K M, Haque E, Mossaddik A. 2009. Invitro Antibacterial Screening and Toxicity Study of some Plants. 5(5). 617-621.
- Demir, S., Yilmaz, M., Koseoglu, M., Aklin, N., Aslan, D., Aydin, A. 2003. The role of free radicals in peptic ulcers and gastritis. *Turkish journal of Gastroenterology*, Mar; 14 (1); 39-43.
- Hachem, C. Y., Clarridge, J. E., Evans, D. G., Graham, D. Y. 1995. Comparison of Agar Based Media for Primary Isolation of *Helicobacter pylori*. *Clin Pathol*. 48. 714-716.
- Moustafa, A. M., Ahamad, S. H., Hussein, A. A., Omran, M. 2010. A Extraction and Phytochemical investigation of *Calotropis procera* effect of plant extract on the activity of diverse muscles. *Pharm Biol*. 1080-190.
- Notani, P. N. 2001. Global Variation in Cancer Incidence and Mortality. *Current Science*. 81;465-74.
- Priya, K., Ganjewala, Deepak. 2007. Antibacterial activity and phytochemical analysis of different plant parts of *Nyctanthes arbor tristis*. Vol.1, Issue 2, 61-67.
- Saini Satish Chand, Reddy G B S, Birari Pankaj. 2013. *Murraya Koenigii*, I.O.R.S *Journal of Pharmacy and Biological Sciences*. 7(6). 15-18.
- Sarvanan V Sakthi; Shanmugapandiyn P; Mahesh K. Antimicrobial activity of chloroform extract of leaves of *C. roseus*. *Asian Journal of Chemistry*, Vol.24, Issue 7, pp-3126-3128, 2012.
- Savita G Aggarawal, Sanjay Goyal. 2013. *Nyctanthes arbor tristis* against pathogenic bacteria, *Journal of Pharmacognosy and Phytochemistry*. 2(3). 124-127.
- Vinoth B, Manivasagaperums R, Balamurugan S. 2012. Phytochemical Analysis and Antibacterial Activity of *Moringa oleifera*. *International Journal of Research in Biological Sciences*. 2(3). 98-102.
