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Research article

Pharmacological screening (anti-ulcer activity) of the ethanolic extract of "*Zizyphus xylopyrus*" (Retz.) willd

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ABSTRACT

The presence of phytoconstituents of ethanolic fractions of Zizyphus xylopyrus, and performed anti ulcer activity. Root powder of the plant was extracted successively with ethanol; Extract had pungent odour. Showed the presence of desired phytochemicals i.e. Flavonoids, Tannin,Phenol. On the basis of all the qualitative tests performed in each extracts; ethanolic extract was subjected for the further Spectroscopic Characterization to isolate the flavonoids;this was subjected for the further pharmacological studies because only the ethanolic extracts and Saponins..

Keywords: *Zizyphus xylopyrus*, Anti- Ulcer, Isolate Fraction.

INTRODUCTION

The growing scenario of herbal medication is approaching milestones day by day and vise a vies "herbalism" is providing the vertex to the field of health care. Pharmacological screening of herbs is one of the important aspects of herbalism providing desired traits to the herbal medication so that it can used for clinical trials, along with that to provide safety concerns. It is a well- known fact that in today's scenario herbal drugs are much preferred over other medications, it may be due to the less safety concerns. the past literatures revels the fact that Zizyphus xylopyrus is one of the unexplored plants whose medicinal value is still seeking a scientific approach, the present work is one of the part to provide sufficient scientific data so as to support the hidden potential of this herb. On the basis of available literatures on this plant antiulcer activity of isolate and EA fraction were sought to investigate by using different screening models [1].

MATERIAL AND METHOD

Chemical and Plant material

Plant *Zizyphus xylopyrus* leaves were collected from botany department of Rani Durgavati University Jabalpur M.P. India. The entire chemical was analytical grade used.

Sample Preparation

The plant, *Zizyphus* xylopyrus leaves were washed properly with tap water followed by rinsing with double distilled water and shade drying for seven days. The fine powder was obtained from dried plant by using kitchen mixer grinder. The plant powder was stored under desiccators for further studies.

Extraction of flavonoids

Solvent extraction of dried leaves powder (50g) of *Zizyphus* xylopyrus was done using 2L of 99% ethanol in a soxhlet extractor for 24h.The extract was concentrated by evaporator [2].

P'cological Screening Antiulcer (Peptic ulcer)

As it is evident from the preliminary phytochemical investigations that ethanolic extract. *Zizyphus xylopyrus* has many flavonoids like Quercetin, from the Co-TLC it shows that it may also have rutin, these observations provides the basis for the selection of pharmacological basis. For the purpose of pharmacological screenings; ethanolic extract, ethyl acetate fraction and isolate were taken to perform comparative studies between them. This was also thoughtto be a mandatory requisite for the further phytochemical investigations on this plant like isolation of the active moiety.

Antiulcer Activity

Drugs and chemicals

Ranitidine (100 mg) tablet, from Helios Pharmaceuticals Laboratories, India was used as a reference drug in all the animal models studied. Rests of the chemicals used for the study were used from the institutional chemical house purchasing all chemicals from CDH, Merck chemicals.

Administration of the extracts and fractions

Suspensions of ethanolic extract, ethyl acetate and ppt. fractions were prepared in distilled water using Tween-80 (0.2% v/v) as the suspending agent. Control groups were given only the vehicle (0.2% v/v Tween-80 solution) in volume equivalent to that of the plant extracts and fractions.

Screening Models for the Assessment of Antiulcer Activity

Gastric lesions induced by HCl/ethanol. The anti-ulcerogenic activity of ethanolic extract, ethyl acetate and isolate fractions, derived from *Zizyphus xylopyrus* were studied in 150 mM HCl/EtOH induced gastric ulcer with small modifications (Hara and Okabe, 1985). Rats were allotted into different groups; each group contained 6 animals each and were fasted for 24 hrs. prior receiving an oral dose of saline (NaCl 9%, 5 ml/kg), ethanolic extract, ethyl acetate and isolate fractions (200 (extract), 50 (fractions) mg/kg). Other group, received Ranitidine (100 mg/kg, p.o) as reference compounds. After 1 hr., all groups were orally treated with 1ml of 150 mM HCl/EtOH (40:60, v/v) solution for gastric ulcer induction. Animals were killed 4 hrs. After the administration of ulcerogenic agent; their stomach were excised and opened along the great curvature, washed and stretched on cork plates. The surface was examined for the presence of lesions and the extent of the lesions was measured. The number of the lesions along the stomach was recorded as ulcer index and % I was also calculated using the formula [3].

Statistics

The ulcer index and percent inhibition; Statistical analysis was performed by one- way analysis of variance (ANOVA) followed by Dunnett's t-test for multiple comparisons. The significance of difference was accepted at $p < 0.05$. Analyses were performed using the software SPSS version 13 for windows.

Basic anatomy of stomach

The stomach is a large sac-like organ situated in the peritoneal cavity, between the esophagus and intestine. It consists of a cardiac antrum (which receives the easophagus), a dome like fundus, a main body, or Corpus; and a funnel shaped pylorus. The mucosal surface is lined by simple columanar epithelial cells. A sharp transition from the stratified squamous epithelium to the simple columnar gastric epithelium occurs at the gastro easophagal junction. The stomach is covered by a peritoneal reflection and is suspended by the body wall that is meso gastrium. When the stomach is empty, the surface has a conspicuous layer of mucosal and sub-mucosal folds called as rougae. Rugae disappear when the stomach is distended with food, they also form deep gutters along the curvature of the fundus, the lesser and greater curvatures of the stomach and in to the pyloric stomach. This layer contains numerous pits, lined by deep surface epithelial glandular invagination called gastric glands. The simple columnar epithelium that lines the gastric mucosa consists of several types of exocrine and endocrine cells and rests on a typical basement membrane. The gastric lamina propria contains scattered lymphatic nodules, lymphocytes and plasma cells. The stomach has some well-developed muscular is mucosae within the rugae. A slip of muscular is mucosae may be closely associated with gastric glands, and the contraction of these smooth muscle cells may help gastric glands express their secretion. The histology of rat's stomach was done a 8 (mp) picture of later was taken in order to confirm the cytoprotective activity of the drug under investigation .The picture of open rat's stomach [4].

RESULTS

These screening models for gastric protections are significant to investigate the protective measures of any synthetic or herbal origin drugs and are popular amongst the researchers. The present study was done in order to investigate the protective effect of ZX against gastric/peptic ulcer. The stress induced ulcer was investigated so as to investigate the protective effect of drug against ulcer induced by various kind of stress.

Gastric lesions induced by HCl/ethanol

An acute dose of extract 500 mg/kg of body weight; showed 64 % ulcer inhibition (% I) and the Ulcer index (UI) of it was found to be 20.44±3.49** ($p<0.01$) as compared to control which has the UI 64.21±1.49. The EA fraction treated animals showed good response but was not significantly good as compared to any of the drug treated groups the mean UI of EA was found to be 20.44±3.49** ($p<0.01$) and the % I at a dose of EA (50 mg/kg) was 53 %. The UI and % I of ppt. fraction was excellent when compared to the standard drug. The UI of ppt. fraction (50 mg/kg) was found to be 4.00±0.54** ($p<0.01$) and the percent inhibition was came out to be 93 % which was quite close to the standard treated group. Standard Ranitidine had given an acute dose of 100 mg/kg showed 95 % inhibition and the UI of 2.94±2.03. These results illustrate that Isolate fraction was most potent as compared to other two plant drug treated groups [5].

Histological results

Various regions of stomachs were investigated and it was The number and severity of lesions in ethanolic extract (500 mg/kg) treated animals was quite less compared to control and ethyl acetate fraction (50 mg/kg) treated animals. The histopathological results clearly revels the fact that Isolate given best protection after standard Ranitidine [6, 7].

CONCLUSION

In conclusion, the anti-ulcer activity demonstrated in the

present study provides additional support for the traditional use of this plant in the treatment of gastric and intestinal ulcers in future research.

REFERENCES

1. Alvarez A, Pomer F, Sevilla, 1999. Studied the gastric antisecretory and antiulcer activities of an ethanolic extract of Bidens pilosa L. var. radiata Schult. Bip. Journal of Ethnopharmacology. 67, Pages 333-340.

2. Alan L, St.John's Wort (Hypericum perforatum), 1998. Provided literature on St. John's Wort Clinical effects on depression and other conditions. Alternative Medicine Review. 1, Pages 18-26.

3. Baker JT, Borris RP, Carte B, 1997. Natural products drug discovery and development: new perspectives on international collaboration. Journal of Natural Products. 58, Pages 1325-1357.

4. Balick MJ, Cox PA, 1997. Plants, People, and Culture: the Science of Ethnobotany. Scientific American Library, New York. Pages 564-574.

5. Charles ES, Lloyd JX, 1923. Isolated and identified the flowers of elder (sambucus canadensis L.) The Journal of biological chemistry. Pages 737-745

6. Devi S, Pandey JP, Shah AH, 1987. Isolated two major Cyclo peptide alkaloids Amphibine-H and Nummularine-K from Ziziphus Xylopyra willd and established their structures by Spectroscopic and Chemical methods. 26, Pages 12:3374-3375.

7. Geysen HM, Schoenen F, Wagner D, Wagner R, 2003. Combinatorial compound libraries for drug discovery: an ongoing challenge. Nature Reviews Drug Discovery. 3, Pages 222– 230.