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Research Article

Phytochemical Evaluation of The Methanolic Extracts of *Zizyphus Xylopyrus* (Willd.)

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Abstract

In this research paper we aim to evaluate the presence of phytoconstitute of methanolic fractions of *Zizyphus* xylopyrus (Willd.). Root powder of the plant was extracted successively with methanol, Extract had pungent odour, showed the presence of desired phytochemicals i.e. flavonoids, tannin, phenol. Qualitative chemical tests were carried out for the methanolic extract of *Zizyphus* xylopyrus (Willd.). The results of the tests showed the presence of carbohydrates, reducing sugars, saponins, phenolics, tannins, and flavonoids. On the basis of all the qualitative tests performed in each extracts, methanolic extract was subjected for the further phytochemical and pharmacological studies.

Keywords: Phytochemical evaluation, *Zizyphus xylopyrus*, Methanolic Extract.

Introduction

The root bark of this plant is reported to have an anti-convulsant and anti-inflammatory activity. Apart from that the leaf of this plant has been reported to have antidepressant and antioxidant activities. The present study was undertaken to evaluate the phytochemistry of mehtanolic extract of *Zizyphus* xylopyrus (Willd.) and prove tribal claim scientifically. Generally we considered that drug consists of the whole dried herb of *Zizyphus* xylopyrus (Willd.) Family- Rhamnaceae is a genus of about 40 species of spiny shrubs and small trees in the buckthorn. The leaves are alternate, entire, with three prominent basal veins, and 2-7 cm long, some species are deciduous, others evergreen[1].The common name of this plant in Hindi - Kat-ber, Gote, Kakor, Ghont. A large, straggling shrub or a small three, armed with spines, up to 4 m. in height[2]. The major chemical composition of *Zizyphus* xylopyrus (Willd.) are rich in flavonoids in particular quercetin, quercitrin, kaempferol-4'-methylether and kaempferol, tannins (7.2%), d-7, 3', 4'-trihydroxyflavan-3, 4-diol and oleanolic acid[3-4]. It also contains cyclopeptide alkaloids namely amphibine H, nummularine- K, xylopyrine - A and xylopyrine – B[5]. The bark was also found to contain betulinic acid (1%), betulin[6]. Fruit contains catechol-type of tannins (8-12%). Fruits were also reported to have oleanolic acid, l-leucocyanidin, 3, 3', 4-tri-O-methylellagic acid[7]. Seeds unsaponifiable matter (0.8%) consists of a sterol, insoluble mixed fatty acid found to contain myristic, linoleic and oleic acid[8]. This plant is widely used in Turkish folk medicines as a potent sedative[9].

Material and Methods

Collection

Zizyphus xylopyrus (Willd.) was collected from the National Botanical Research Institute, Lucknow (U.P.) India in the months of April to June 2010. The leaf of this plant was shade dried and finely powdered with the help of mixer. A small amount of powdered drug was spread on a white tile and physically examined for general appearance i.e. color, nature, texture.

Preparation of Methanolic Extracts

Aprox 100 gm. leaves of *Zizyphus* xylopyrus (Willd.) dried at room temperature in shade. The shade dried plant material was coarsely powdered and subjected to extraction with Chloroform in soxhlet apparatus. The extraction was continued till the defatting of the material had taken place. The marc obtained after petroleum ether was subjected to methanol extraction in soxhlet apparatus. The extraction was continued for a period of 6-7 days to achieve complete extraction. The extract was concentrated and dried to a constant weight.

The presence of desired phytochemicals, qualitative chemical tests were carried out for the methanolic extract of *Zizyphus* xylopyrus (Willd.). The results of the tests showed the presence of carbohydrates, reducing sugars, saponins, phenolics, tannins, and flavonoids. The dried extracts of the drugs were evaluated for physical parameters such as consistency, color, odor and taste.

Preliminary Phytochemical Investigations

The preliminary phytochemical investigations were carried out with methanolic extracts of roots of *Zizyphus* xylopyrus (Willd.) for qualitative identification of phytochemical constituents present with each extract and tests were carried out by following standard methods. All the chemicals and reagents used were of analytical grade. On the basis of all the qualitative tests performed in each extracts, methanolic extract was subjected for the further phytochemical and pharmacological studies.

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Results and discussion

After drying, the plant was powdered and it was subject for the organoleptic characterization. The color of the powdered drug was found to be light green with aromatic odor and coarse texture. After this 100 gm powdered drug was carried out for direct methanolic extraction. The extractive value was calculated and was found to be 10.6 %. The extract was further examined for its physical characterization like color, odor, consistency, etc. The color of the extract was brown, with a semi-solid consistency. Extract had pungent odor, showed the presence of desired phytochemicals, Qualitative chemical tests were carried out for the methanolic extract of *Zizyphus* xylopyrus (Willd.). The results of the tests showed the presence of carbohydrates, reducing sugars, saponins, phenolics, tannins, and flavonoids. On the basis of all the qualitative tests performed in each extracts; methanolic extract was subjected for the further phytochemical and pharmacological.

Table III: Chemical tests in the methanolic extract of *Zizyphus xylopyrus* (Willd.)

Phytoconstitutents	Methanolic extract
Alkaloids	-
Glycosides	+
Phenols/Tannins	+
Flavonoids	+++
Saponins	++
Fixed oil/Fats	+
Gums & Mucilage	-
Carbohydrates	+
Amino acids	-
Steroids	+

(+) = Present, **(-)** = Absent

Table I: Organoleptic characters of powder of crude drugs

Drug	Texture	Color	Odor	Nature
Zizyphus xylopyrus (Willd.)	Rough	green	Aromatic	Coarse/ Fine

Table II: Physical characteristics of extracts of *Zizyphus xylopyrus* (Willd.)

Name of Extract	Consistency	Color	Odor	Extractive value (w/w)
Chloroform extract	Semi- Solid	Green	Aromatic	8.7%
Methanolic extract	Semi- Solid	Blackish Brown	Characteristic	10.6%

Conclusion

Now a day we are witnessing a great deal of public interest in the use of herbal remedies. Herbal medicine is based on the premise that plants contain natural substances that can promote health and alleviate illness. This work was conducted to explore the hidden potential of this unexplored herb. Initially due to the less data available in this plant we felt tough to decide the basis of our work, so the strong basis was opted to work on that plant was the other species of the same genera and phytochemical reported on this plant mainly flavonoids .In recent findings done on these plants as well as flavonoids It was thought worthwhile to investigate and to provide the scientific data on its use as an antiulcer agent. The work was initialized by the collection of its leaves, which was not a daunting task. The successive solvent extraction was the primary work done in it, the extractive value of all the extracts except the ethyl acetate and methanolic extract were in workable quantities. Qualitative tests revealed the fact that methanolic extract of this plant contains major phytochemicals viz. phenolics, flavonoids, tannins, saponins, and traces of alkaloids. It was thought worthy to select this extract for the further studies like pharmacological.

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