Review: A Medicinal herb Zizyphus *Xylopyrus* (Retz) willd.

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Abstract:

Ayurveda is the system of traditional medicine. The origin of Ayurveda is found in Upveda and Atharvaveda. Ayurveda is the traditional way to cure diseases without any side effect. In western countries people are beware of side effect of synthetic drugs. Traditional medicine plays an important role in our daily life. Zizyphus species having lots of medicinal importance. Zizyphus xylopyrus is one of the species of Zizyphus genus having medicinal importance, like antidiarrheal, antidepressant, potent sedative, in treatment of liver problems weakness etc. Phytochemical study of this plant showed the presence of alkaloids, glycosides, carbohydrates, steroids and sterol ,tannins, proteins and amino acid ,triterpenoids , and flavonoids. The present review is the way to know the phytochemistry and traditional uses of the species Zizyphus xylopyrus.

Keywords: Zizyphus Xylopyrus.

Introduction

About 7500 plants were known for medicinal uses. Zizyphus have about 40 species spread all over the Asia in warm temperate region and sub tropical region. Zizyphus is a genus of spiny shrub, spines are rare and sometimes trees in the family Rhamnaceae. Leaves are alternate 2-7 cm long some species are deciduous and other are evergreen. Branched or unbranched with spine About 6-10 meter in height(1).Zizyphus species contains more than 170 cyclopeptides and alkaloids like xylopyrine (A,B,C,E and F)(2,27,28.42). Stem bark of Zizyphus xylopyrus when subjected to phytochemical studies showed the presence of alkaloids, glycosides ,carbohydrates ,steroids and sterol ,tannins, proteins ,triterpenoids , and flavonoids.(3). Insulin, lignin (4). Plants of Zizyphus species are used in India as medicine for the treatment of various diseases skin infection, fever, diarrhea and digestive disorders etc.

Some parts of this zizyphus species are being used in Turkistan as potent sedative. Also some species were used as antidote against snake bite, lizard poisoning and wound healing (5) Extract of this plant is used in treatment of weakness, liver complaints (6) A chloroform and ethanolic extract is used as antioxidant, antidepressant, wound healing.(3,7). Solvent extracts of dichloromethane, methanol, ethyl acetate are used for antibacterial activity (8). Bark extract of Z. xylopyrus shows Anti-inflammatory and analgesic activity (9) anthelmintic activity.

Few species of Zizyphus genus are reported to have medicinal importance

Zizyphus *xylopyrus*

Zizyphus *Jujuba*

Zizyphus *Nummalaria*

Zizyphus *maurintiana*

Zizyphus *spina creastae*

Zizyphus *mucronata*

A lot of medicinal importance has been given to the species of Zizyphus xylopyrus and many numbers of papers showed the continuous scientific research on it with reference to their medicinal and biological activity. Medicinal uses of Zizyphus xylopyrus have generated more interest in its phytochemistry. This review gives the idea about scientific research activity on this plant. This study will provide referential data for the identification of drugs, its chemical constituents and medicinal uses.

Morphology of Zizyphus xylopyrus

Zizyphus xylopyrus (wild) **Commonly known as Jujab in English ,Kathber ,Ghont in hindi and ghotika in Sanskrit** is found in a warm temperate region of India, Pakistan, Bangladesh and some regions of Asia. It is also found in decidius forests commonly in india. Zizyphus xylopyrus found in Maharashtra also. It grows as shrub or sometimes tree; stem is round with yellowish brown in colour.

Vernacular names

Saskrit ; Ghotika

Hindi : Kathber ,

Bengali : Kulphal

English : Jujab

Kannada : Yeranu

Tamil: Kottai Mulkottai

Telagu: Gotti Got Gotiki

Marathi: Ghatbor, Ghoti, Bhorgoti **.**

Scientific classification

Phylum:

Subphylum:

Class: Dicotyledon

Subclass: Polypetalae

Series: Disciflorae

Order: Celastrales

Family: Rhamnaceae

Genus: Zizyphus

Species: *Xylopyrus*

Traditional uses:

The various parts of the plant Zizyphus xylopyrus (retz.) willd such as leaves, flowers, seeds and roots are widely used by various tribal communities and forest dwellers for the treatment of variety of ailments. The plant has reported as remedy for digestive disorder, urinary trouble, bronchitis, anemia, leucoderma, and ulcer. carmilative, bronchial asthama.

Leaves

Plant leaves are used as remedy for leucoderma along with pivala dhotara (10). Leaves are chewed for 15 days in urinary trouble. (5)

Stem bark:

The stem bark is used as dental stick for teeth cleaning. 50 gm of fresh stem bark of this species is soaked in 200ml of water for 12 hr and filter. Filtrate is taken orally on an empty stomach to cure stomachache (11). Stem bark paste made in to pills and taken oraly against cholera (12). 1-2 inches of fresh stem bark of this species are chewed with peppers and the sap swallowed ones daily for 5 days to get relief from cough (13).

Seed :

Roasted seed powder is used as medicine to cure pain after cough and cold(14). Fine powder of seeds mixed with cup of water or hot milk or with tea taken orally to cure diarrhea (15)

Fruit

Crushed fruit powder is deeped in water and kept overnight, this extract is taken by the women early in the morning for 7 days to check oogenesis (16). Fruit powder with pinch of ginger is useful to cure stomachache (17). Fresh fruit crush in glass of water and taken two times in day to get relief from urinary trouble infection(5). Fruit powder taken orally with milk for 5 days to cure dysentery diarrhoea(18).

Roots:

Roots of this plant were used as remedies to cure pyorrhea, bristles and to check oogenesis (2). Roots of Zizyphus Xylopyrus are also used as veterinary medicine to cure disease like Anthrax in Rayala seema region of Andhra Pradesh.(19).

Roots and fruit are also used to cure menorrhagia, thirst, bronchial asthma, aphrodisiac, emetic, carminative, digestive (20).

Whole plant :

Whole plant is used as anti-inflammatory, wound healing, anti-depressant and antibacterial, antidiabetic (3,7,8,21,47).

Ayurvedic properties

Rasa : Madhura

Guna : Laghu

Virya :Usna

Vipaka :Katu

Karma : Visghma, Vatakaphahara

Phytochemical study :

The information of chemical constituent and medicinal uses of plant is necessary to understanding the pharmacological activity as well as to enhance the extraction procedure. A number of compounds have been extracted fromZizyphus xylopyrus and they belong to flavonoids, carbohydrates, tannins, saponin, alkaloids, glycosides, proteins and amino acid (3,7,8,21).From Zizyphus xylopyrs**,** mauritine D**,** nummularine B, have been isolated for the first time(22). Ning hua et al have isolated amphibine H, mauritine D, nummularine B and K. (23)

CONSTITUENT	RESULT
Alkaloids	+
Carbohydrates	+
Glycosides	+
Saponin	+
Flavonoids	+
Tannin	+
Triterpenoids	+
Lignin	+

Leaves:

Leaves of Zizyphus xylopyrus contain glycosides, phenols, flavonoids, saponin fixed oil fats, gums, and mucilage, carbohydrates, steroids (24). Quercetin, Quercetrin(1). According to Pradeep Kumar Gupta alcoholic extract of leaves shows the test for steroidal glycosides test for triterpenoid, cardiac glycosides, flavonoids, carbohydrates, alkaloids. and aqueous extract shows test for triterpenoids, saponin , carbohydrates, alkaloids, phenolic compound and tannins(25).

Stem bark:

Lot of work has been done on stem bark. Phytochemical screening of Zizyphus xylopyrus determines the presence of alkaloids, glycoloids, carbohydrates, steroids and sterol, tannins, proteins and amino acid, triterpenoids, saponins and flavonoids. The ethanolic extract of stem bark shows better result for anti-oxidant activity than that of methanolic extract (3,9). Stem bark extract can be efficiently used for the biosynthesis of silver nano particles. U V visible spectroscopy shows peak in the range of 413-420nm(26). Crude fraction of bark shows the presence of xylopyrine G and xylopyrine H. The base fraction of the bark of Z. xylopyrus also contain the presence of xylopyrine-F (27). From Zizyphus xylopyrs**,** mauritine D**,** nummularine B, have been isolated for the first time(22). amphibine H, mauritine D, nummularine B and K(23)

Roots

Chromatographic study of roots of Zizyphus xylopyrus shows the presence of Xylopyrine A and xylopyrine B (28).

Fruit:

Phytochemical study of fruit of Z. xylopyrus shows the presence of vitamin C, Carotene, oleanolic acid, sucrose and reducing sugar.(29).

Seed

Seeds of this species also contain the unsaponifiable matter linoleic acid, oleic acid (30).

Stem Wood

Bitulinic acid was extracted from wood followed by chromatography on silica gel and recrystallize from methanol extract.(31)

Biological activity

Wound Healing

According to B K Jena and coworkers the methanolic extracts of Zizyphus Xylopyrus wild stem bark gives positive wound healing test on rat (21) BK Jena and coworkers conclude that the ethanolic extracts of Zizyphus xylopyrus wild stem bark shows angiogenic as well as wound healing properties.(7). RK Jain and coworkers prepared ethanolic extracts of leaves of Zizyphus xylopyrus and used it for excision and incision model in healthy Swiss albino rats (32).

Antisteroidogenic effect

According to Ramaiyan and coworker the ethanol extracts of Mitragyna parvifolia, Plumeria Rubra flowers, and Zizyphus xylopyrus fruirt delayed the onset of puberty where Zizyphus xylopyrus shows more antisteroidogenic properties than M. parvifolia and P. Rubra (33).

Antioxidant activity:

B K Jena and coworker prepaired a ethanolic and methanolic extract of stem bark of Zizyphus xyloprus and evaluate for its in vitro antioxidant property by using DPPH, nitric oxide , super oxide and hydroxyl radical . The result shows that ethanolic extract of Zizyphus xylopyrus possess better antioxidant property than the methnolic extracts of Zizyphus xylopyrus (3). According to Vimal sharma and co workers extracts and different parts of Zizyphus xylopyrus were act as both antioxidant and anti-ulsur agent (34).

Anticonvulsant activity:

Y.B.Rao and coworker prepaired a ethanolic extracts of bark of Zizyphus xylopyrus at room tempreture to obtain a brown gummy mass. **Anticonvulsant** activity of Zizyphus xylopyrus was found against supramaximal electroshock seizure in albino rat of either sex (100-150gm) where hind limb etensior response was taken as positive test(35)

Anti-inflammatory activity:

Anti-inflammatory activity of ethanolic bark extract of Zizyphus xylopyrus was observed against oedema produced by subplanter injection of 1% corrageenin in saline. Oedema produced were observed after three hour .Where extent of oedema produced by admistration of corrgeenin in Zizyphus xylopyrus 200 mg/kg less than pretreated group(35).

Antinociceptive activity

Ethanolic bark extract of Zizyphus xylopyrus was also studied for the antinociceptive activity in albino rat.(35).

Antidepessant:

According to V K sharma ethanolic extract of Zizyphus xylopyrus shows antidepresnt activity(36)

CONCLUSION

The survey of literature showed that presence of phytoconstituents claims different biological activities. We have selected Zizyphus xylopyrus of Family Rhamanacae for phytochemical and biological study and their biological activity.

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