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Evaluation of Phytochemical Screening and Traditional Value of *Zizyphus xylopyrus* (Retz) Wild.

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ABSTRACT

The present research work deals with the evaluation of phytochemical screening and traditional use values of *Zizyphus xylopyrus* (Retz) Wild. These plants are used in ethnomedicine to cure various diseases in Tamil Nadu, and in the study, were collected from Kalyanacholapuram, Tamil Nadu, India, and were washed and dried under shade conditions. The dried plant materials were then ground, and kept under suitable storage conditions until the time of extraction. On doing so, we uncovered the secondary metabolites carbohydrates, glycosides, flavonoids and triterpenoids of ethanolic extracts of leaves.

Keywords: Phytochemicals, *Zizyphus xylopyrus* leaves, Cure diseases

1. INTRODUCTION

Traditional medicine is the sum total of knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different culture that are used to maintain health as well as to prevent, diagnose improve or treat physical and mental illnesses. Traditional medicine that has been adopted by other population is often termed alternative or complementary medicine. In India, out of the 17,000 species of higher plants 7500 one known for medicinal uses. This proportion of plant known for their medical purposes in any country of the world for the existing flora of the respective country. Traditional medicine knowledge and its use for finding active chemical structures for efforts between modern and traditional health workers and researchers (Hamill et al, 2003) in Uganda, India, as in other developing

countries, traditional medicine occupies a central place among rural communities but enough information is not available about the chemical composition and real biological possibilities of most of the plants traditionally in use. (Tabuti, 2003; Jayakumar, 2015a&b), phytochemical are bioactive chemicals of plant origin. They are regarded as secondary metabolites because the plants that manufacture them may have little need for them. They or naturally synthesized in all parts of the plant body May contain active components bark, leaves, stem, root, flower, fruits, seed, etc. i.e., any part of the plant body may contain active components (Jayakumar, 2013; Jayakumar, 2015) the quantity and quality of phyto chemical present in plant parts may differ from one part to another. In fact, there is lack of information on the distribution of the biological activity in different plant parts essentially related to the difference in distribution of active compounds (Jayakumar et al, 2013&b; Lablov, 2004).

India has an ancient heritage of traditional medicine used on the basis of ayurveda siddha and unani system the material media of India. Provides lots of information on about 2000 drugs of natural origin including traditional uses and folkloric claims due to emerging interest the 80% of world's population is adopting traditional medicine the government of India has initiated several attempts to explore ethanopharmacology and traditional uses for the evaluation of their therapeutic potential as well as help to generate data to put these botanical in international market of public healthcare domain a considerably small number of marketable drugs or phytochemical entities have entered on evidence based therapeutics but efforts are still needed to be established for bioactive molecules in herbal drug. *Ziziphus xylopyrus* (Family: Rhamnaceae) is distributed in north west india uttar pradesh Bihar and central south India in hindi it known askatber in tamil kottei and telugu Gotte the leaves of said plant are alternate entire with three prominent basal veins and 2-7 cm long some species are deciduous, others ever green the major chemical composition are tannins flavonoids, quercetin, kaemferol-4 methyl ether and kaempferol, cyclopeptide, alkaloids amphibine-H and nummularine-K. The root bark of this plant is reported to have antinociceptive anticonvulsant and anti inflammatory activity aside from that, the leaves shows anti present activity, antimicrobial, antiulcer and anti inflammatory activity (Singhal *et al.*, 2012; Modi *et al.*, 2014; Jena *et al.*, 2012; Washid *et al.*, 2011; Saima, 2013; Niraimathi, 2013; Patil, 2012; P Jhansi, 1991; Nawwar, 1984).

Systematic position

Kingdom: Plantae

Class: Rosidae

Order: Rhamnales

Family: Rhamnaceae

Genus: *Ziziphus*

Species: *xylopyrus*

2. MATERIALS AND METHODS

The present work deals with the phytochemical analysis, medicinal properties of *Ziziphus xylopyrus* (Retz). Wild.

2. 1. Collection and Preparation of Dried Plant Material

The *Ziziphus xyloprus* (Retz). Wild plants were collected from Kalyanacholapuram, Tamil Nadu, India. The plant material was dried under the shade. After the plant material had been dried, it was kept in a proper container until the time of the extraction.

2. 2. Preparation of Ethanol Extracts

Fresh weight 50g of *Ziziphus xyloprus* (Retz) Wild, leaves were taken & subjected to drying. Dry powder of leaves was extracted into solvent like alcohol. Filtrate of these extract were used for further analysis

2. 3. Phytochemical Screening of Plant extracts

The leaves were extracted into solvent like alcohol. The aqueous extract was freshly prepared & taken into different test tube. The phytochemical screening of given samples following tests were carried out for analysis.

2. 3. 1. Detection of alkaloids

Extracts were dissolved individually in dilute hydrochloric acid & filtered

2. 3. 1. 1. Mayer's test

Filtrates were treated with Mayer's reagent (potassium mercuric iodide). Formation of yellow coloured precipitate indicates the presence of alkaloids

2. 3. 1. 2. Wagner's test

Filtrates were treated with Wagner's reagent (Iodine in potassium Iodide). Formation of brown / reddish precipitate indicates the presence of alkaloids.

2. 3. 1. 3. Dragendroff's test

Filtrates were treated with Dragendroff's reagent (solution of potassium Bismuth Iodide). Formation of red precipitate indicates the presence of alkaloids.

2. 3. 1. 4. Hagers test

Filtrates were treated with hagers reagent (saturated picric acid solution). Presence of alkaloids confirmed by the formation of yellow coloured precipitate

2. 3. 2. Detection of saponins

2. 3. 2. 1. Froth Test

Extracts were diluted with distilled water to 20 ml and this was shaken in a graduated cylinder for 15 minutes.

Formation of 1cm layer of foam indicates the presence of saponins.

2. 3. 3. Detection of flavonoids

2. 3. 3. 1. Alkaline reagent test

Extracts were treated with few drops of sodium hydroxide solution formation of intense yellow colour, which becomes colourless on addition of dilute acid, indicates the presence of Flavonoids.

2. 3. 4. Test for steroids

5 drops of concentrated H_2SO_4 were added to 1 ml of leaf extract development of red colouration was indicative of a positive reaction for steroids.

2. 3. 5. Test for terpenoids

2 ml of leaf extract treated with 2 ml of chloroform and few drops of concentrated H_2SO_4 occurrence of light orange colouration indicates presence of terpenoids.

2. 3. 6. Test for glycosides

Extracts was treated with 2 ml of Glacial acetic acid, add 1drop of $FeCl_3$ and 1 ml of concentrated H_2SO_4 appearance of brown colouration indicates the glycosides.

2. 3. 7. Test for quinone

Extracts was treated with concentrated HCl appearance of green colouration indicates presence of quinine.

2.3.8. Test for triterpens

To 0.5 g each of the extract was added 2 ml of chloroform concentrated H_2SO_4 [3 ml] was carefully added to form a layer. A reddish brown colouration of the interface indicates the presence of terpenoids.

2. 3. 9. Test for tannins

2 ml of leaf extracts with 1% of lead acetate solution occurrence of yellowish precipitate shows presence of tannin.

3. RESULTS AND DISCUSSION

The phytochemical screening carried out of *Zizyphus xyloprus* (Retz). Wild reveals the presence of phenol and Tannins, Anthraquinone were not detected. The secondary metabolites like, Glycosides, Triterpenoids Glycosides, flavonoids, Carbohydrates are presents.

Traditional medicines are used through near about two percent of the world's population. These are not solitary used intended for major health care inside rural areas through also in developing countries. In developed countries modern medicines has been here ditary and are an important component of the health care system in India *Zizyphus xylopyrus* (Retz). Wild (Rhamnaceae) is an straggling shrub or a small tree, armed with spines up to 4m in height, found throughout north western India, Pakistan and china.

The aerial and root barks, leaves, and fruit of *Ziziphus* species used in Indian system of medicine for the treatment of various disease such as weakness liver complaints, obesity, diabetes skin infections, fever, diarrhoea, insomnia and digestive disorders.

The presence of a mixture of phytoconstituents like alkaloids, glycosides, carbohydrates phenols, and tannins, phytosterols, fixed oils, fats, proteins, and amino acids, flavonoids, saponins, gums and mucilage by means of detection methods. The leaves shows antidepressant activity, antimicrobial, antiulcer and anti inflammatory activity Singhal *et al.*, 2012; Jena *et al.*, 2012; Walid *et al.*, 2011; Jayakumar, 2016.

Table 1. Phytochemical analysis of *Ziziphus xyloprus* (Retz). Wild

Name of the Test	Presence or Absence
1. Test for Sterols	
a. Salkowaski Test	-
b. Liebermann – Burchard Test	-
2. Test For Steroidal Glycosides	+
3. A) Test for Triterpenoids	
a. Salkowaski Test	+
b. Liebermann – Burchard Test	+
c. Briekorn and Brinar Test	+
B. Test for Triterpenoid Glycosides (Hydrolysis)	
a. Salkowaski Test	+
b. Liebermann – Burchard Test	+
c. Tschugasew test	+
d. Briekorn and Brinar Test	+
4. Test for Glycosides	
(i) Cardiac Glycosides	
a. Baljet’s Test	+
b. Legal’s Test	+
c. Killar – Killiani Test	+
(ii) Anthraquinone Gycosides	
a. Borntrager’s Test	-
b. Modified Borntrager’s test	
5. Test For Saponins	

a. Foam Test	-
b. Haemolysis Test	-
6. Test for Flavonoid ,	
Flavonoid Glycosides	
a. Shinoda Test	+
b. Zinc Hydrochloric acid reduction Test	+
7. Test For Carbohydrates	+
a. Molosch's Test	+
b. Fehling's Test	+
c. Berfoed's Test	+
d. Benedict's Test	+
e. Selvinoff's Test	+
f. Test for pentoses	+
8. Test for Alkoloids	
a. Mayer's Test	+
b. Wagner's Test	+
c. Hager's Test	+
d. Dragendorff's Test	+
9. Test for phenolics and Tannins	
a. Lead acetate Test	-
b. Ferric Chloride Test	-
c. Gelatin Test	-
d. Dilute Nitric acid	-
e. Pottassium Dichromate	-
f. Dilute Iodine solution	-

4. CONCLUSIONS

Medicinal plants are used to treat illness and diseases for thousands of years. They have gained economical importance because of their application in pharmaceutical, cosmetic, perfumery and food industries. The interest in herbal systems of medicine is growing day-by-day because nature can cure many diseases. Plants are considered to be biosynthetic innovative, which produce primary and secondary metabolites. Many primary metabolites like

carbohydrates, proteins and lipids and secondary metabolites like glycosides, alkaloids, tannins, volatile oils etc., which have therapeutic effects in human beings and animals are obtained from these solar powered biosynthetic laboratories. Secondary metabolites have been shown to alter biological processes which may reduce the risk of chronic diseases in humans. An impressive number of modern drugs have been isolated from natural sources. Many of these isolations were based on the uses of the agents in traditional medicines. Preliminary phytochemical screening was carried out and result showed that the presence of carbohydrates, glycosides, flavonoids and triterpenoids of ethanolic extracts of leaves. This phytochemical screening suggests that the leaves, ethanolic extracts of *Ziziphus xylopyrus* probably contain active secondary metabolites cure various diseases, used by traditional healers in Tamil Nadu.

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