

Analysis of Phytochemicals of Medicinal Plants (Tejbal) Found in Jashpur Nagar Chhattisgarh

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Abstract— Analysis of medicinal plant for their phytochemicals which contributes to the discovery of new medicinal properties that are important for identification and treatment of various diseases. It has been intensively explored also for their primary health care needs about 80% of antibacterial drug and 90% of antimicrobial are 70% of antifungicidal drugs and several metabolites and their various derivative. Some Ethromedicinal plants used by the various communities of Jashpur district Chhattisgarh India. Such plants had been indispensably used by many cultures and tradition. The study reveals that Tejbal plant is very useful medicinal plant.

Keywords— Phytochemicals, Ethromedicinal plants, Medicinal properties.

I. INTRODUCTION

Herbal medicine is the oldest form of healthcare known to mankind. Herbs had been used by all cultures throughout history. It was an integral part of the development of modern civilization. Primitive man observed and appreciated the great diversity of plants available to him. The plants provided food, clothing, shelter, and medicine. Much of the medicinal use of plants seems to have been developed through observations of wild animals, and by trial and error. As time went on, each tribe added the medicinal power of herbs in their area to its knowledgebase. They methodically collected information on herbs and developed well-defined herbal pharmacopoeias. Indeed, well into the 20th century much of the pharmacopoeia of scientific medicine was derived from the herbal lore of native peoples. Many drugs commonly used today are of herbal origin. Indeed, about 25 percent of the prescription drugs dispensed in the United States contain at least one active ingredient derived from plant material. Some are made from plant extracts; others are synthesized to mimic a natural plant compound. Chemical compound and metallic ion are the basic building of all the biological intergradient's such composition also present in the various plants. Which widely used to cure many diseases such properties of plants known via the phytochemical studies as source of medicinal value. In many developing countries traditional medicine is still the mainstay of health care and most of drugs and cures come from the natural source. (Md. K Hussain et al. 2011)

It has been recorded that about 450-500 or more plants growing or available in Indian forest possess therapeutic values. It is reasonable to calibrate ITCM into the medicine scholarly medicinal and spiritual heating system. While it is difficult to establish an accurate origin and chronology of TCN founded many years ago treatment lies to cure the intestinal parasites. Natural products estimated that disease and suffering used mark of the impermanence of human life. Due to advancement is medicinal sense via the extensively studies attempted as sources phytochemical analysis.

II. PLANT PROFILE

Tejbal (Zanthoxylum amaratum)

Description: *Zanthoxylum amaratum* is a plant that is enriched with medicinal properties. It is known to control two doshas, kapha and vata. Vata is known to control blood circulation, breathing, blinking and our heartbeat. Kapha is known to control supply of water to all body parts, skin ailments and immune system. So, tejbal has tendency to cure various body ailments and disorders related to digestion, circulation, immunity and skin. All the parts of plants known to have stomachic, anthelmintic and carminative properties. Due to their deodorant and disinfectant, helpful to ward-off flies.

Taxonomic Classification:

Kingdom	Plantae
Subkingdom	Tracheobionta
Phylum	Tracheophyta
Superdivision	Spermatophyte
Division	Magnoliophyta
Class	Magnoliopsida
Subclass	Rosidae
Order	Sapindales
Family	Rutaceae
Genus	<i>Zanthoxylum</i>
Species	<i>Zanthoxylum amaratum</i>

Morphological characteristics:

- Tejbal is an evergreen, thorny shrub or small tree, attaining a height up to 6 m. Its branches are nearly 1.2cm long.
- Leaves are 4–20 cm long, imparipinnate, pungent, and aromatic with glabrous, narrowly winged petiole having two stipular prickles at the base.
- Leaflets are lanceolate, glabrous on the underside, and occur in two to six pairs.

Floral characteristics:

- Flowers occur in dense terminal or sparse axillary panicles and are green to yellow in colour.
- Male flower contain 6 to 8 stamens with large anthers and female flower contain 1 to 3 called.

Name – Tejbal has many names like tejabala, valkala, tejini, parijata, suvarna, and nakuli.

Latin name – Tumburu

English name – yellow wood tree, toothache tree.

Botanical name – *Fagara armata* Thunb

Zanthoxylum alatum

Zanthoxylum aramatum

Zanthoxylum planispinum Siebold and Zucc

Properties - it eliminates burning sensation.

It is beneficial to digest food.

It destroys cough, breath, cough, mouth, and vetosis.

External uses of tejbal

It is known as stimulant, antiparasitic and prevents necrosis. Its powder is used as dust on wound. It is also used in headache.

The juice of this plant is used for throat disorders, gargling in oral and dental problems.

Internal uses of tejbal

- 1) Anti-inflammatory activity: This plant known for its anti-inflammatory action and shows significant inhibition of pro-inflammatory cytokines like tumor necrotic factor and interleukin-6.
- 2) Anti-bacterial activity: It is known to counter gram positive bacteria like *B. subtilis*, *Staphylococcus aureus* and gram negative bacteria like *E. coli*, *Salmonella typhi* and more.
- 3) Cardiac disease: It has cardiac stimulant properties so very helpful in heart disease. As its calcium antagonist mechanism provides a base to treat cardiac disease.

Therapeutic uses

- Fruits, seeds, and bark of tejbal are used as aromatic tonic in dyspepsia and fever.
- Fruits and seeds are beneficial in dental troubles, thus used to prepare dental paste and powder.
- Tender twigs are used to brush teeth and used as a remedy for toothache.

Medicinal uses: Tejbal is a medicinal tree. Its leaves, roots, and seeds are used for medicinal purposes. In Ayurveda, the seeds are used in treatment of digestive impairment, piles, heart diseases, hiccups, cough, throat disorders, asthma, and dental diseases.

Caution, side effects & warning:

- It is hot in potency.
- Hot potency medicines should not be used in pregnancy.
- Fruits of plants are emmenagogues and stimulate blood flow in the pelvic area and uterus. It can stimulate menstruation.

III. EXPERIMENTAL METHODOLOGY

A) Study Area: Jashpur District lies in the north-eastern corner of the state of Chhattisgarh in India adjoining the border of Jharkhand and Odisha. Jashpur Nagar is the administrative headquarters of the district. It is currently a part of the Red Corridor. The north-south length of this district is about 150km, and its East-West breadth is about 85km. Its total area is 6,205 km². It is between 22° 17' and 23° 15' North latitude and 83° 30' and 84° 24' East longitude.

B) Collection of plant materials – Fresh plant samples were collected from cave region (Kailash cave) and plain field. (Sofwora, 1993 & Harborne 1973 et al.).

1) Test for ALKALOID

Wagner's test -

- About 1ml of leaf extract and add Wagner's reagent are added and mixed.
- Formation of reddish brown ppt indicates that the presence of alkaloid.
- Mayer reagent :- HgCl₂ + KI + H₂O (100ml)
- About 1ml of leaf extract and add Mayer reagent (HgCl₂ + KI + H₂O).
- Formation of white ppt.

2) Test for FLAVONOID

- 1-5 drops of concentrated HCl were added to 1ml of ethanolic extract of plant material.
- Formation of red colour determines that the presence of flavanoids.

3) Test for PHENOLS

- Liebermann's test:- about 1ml extract (leaf) add 1ml of sodium nitrite few drops diluted H₂SO₄ and 2ml diluted NaOH.
- Formation of deep red colour determines the presence of phenols.

4) Test for TERPENOIDS

- Dry crude plant extract (1mg) was taken in test tube and dil. CHCl₃ and add acetic anhydride about 1ml.
- Finally H₂SO₄ (1ml) was added carefully through side of test tube to the solution.
- Formation of green colour.

5) Test for SAPONINS

- Dry extract (1mg) was taken in test tube and dissolved with CHCl₃ (10ml).
- Add equal volume of concentrated H₂SO₄ and has been observed that appearance of red and H₂SO₄ layer showed yellow with green fluorescence.

6) Test for STARCH

- About 1ml of extract add 50% iodine solution
- Appearance of blue black.

IV. RESULT AND DISCUSSION

Ethanolic extracts of the leaves of *Zanthoxylum aramatum* showed the presence of alkaloid, terpenoids, flavonoid, steroid and phenol. Amino acid and protein were not found in ethanolic extract of *Zanthoxylum aramatum*. Similarly, the aqueous extract of the plant revealed the presence of alkaloid, terpenoids, flavonoid, steroid and phenol and except anthocyanin, amino acid and protein. Table showed the results of phytochemical analysis of the ethanolic and aqueous extracts of *Zanthoxylum aramatum*.

Biochemical inference:

Component	Methanol	Ethyl acetate	Butanol
Alkaloids	-	-	-
Flavonoids	+	-	+
Terpenoids	-	-	-
Saponins	-	+	-

Present study revealed that the level of phenolic compounds in such extracts as health benefits by absorbing and centralizing as free radicals etc

S.No.	Test	Methanol	Ethanol	Aqueous
1.	Saponin	-	-	-
2.	Terpenoids	+	+	+
3.	Phenols	++	+	-
4.	Flavonoids	+	++	-
5.	Alkaloid	+	+	+

(-) = indicate absence of phytochemical
(+) = indicate presence of phytochemical
(++) = show high concentration

More than 2000 polyphenols (flavonoids monophenols and etc.) are found in vascular plants. such possess the antioxidant vital substances which possess the ability to protect the body from damage caused free radicals etc. as peroxides hydro peroxide of lipid hydroxyl. It also enhance to control the various biological activities and anti-inflammatory, anti angiostic, antimicrobial, antioxidant, reduced hypertension blood pressure control and has anti-cholesterol properties. Basic serve as free radical scavengers, reducing agents singlet oxygen ammeters metal chelators and hydrogen donor.

V. CONCLUSION

After the present investigation it is concluded that Tejbala plant has Hepato protective effect against toxicity and also contain some beneficial secondary metabolites. However, it is necessary to isolate and purify the active principles involved in the pharmacological potency of this plant and determine its mechanism of action.

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