WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 2, 1184-1195. Review Article ISSN 2277– 7105

REVIEW ON LIMNOPHILA RUGOSA LEAVES FOR ANTI-INFLAMMATORY ACTIVITY

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Article Received on
13 Dec. 2021,

Revised on 03 January 2022,
Accepted on 23 January 2022

DOI: 10.20959/wjpr20222-23059

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1. ABSTRACT

Bhringraj is one of the most powerful rasayan drugs in the chemical composition of ayurveda. The Ayurvedan lexicon (rajnighantu) considered 3 types of bhringraj (sweater, pitta, and neel). Traditional healers and surrounding people in the gandhamardan hill area of Orissa use the plant, limnophila rugosa of the family scrophulariaea, with a blue flower in the name of the bringaraj.[1,7]

The plant is used to treat various diseases such as pestilent fever, ivory, diarrhea, diarrhea, dyspepsia etc. Especially Plants Contain Flavored, Triterpenoid (Steroid), Amino Acids, Alkaloids, Tannin, Phenols, Essential Oil, Carbohydrates And Proteins. Individual Phytochemicals and Different Quotations have been shown to be important Biological Functions such as Anti-Microbial, Anti-Inflammatory, Diuretic, Hypotensive And Effects On Guinea Pig Ileum.[1,5]

Complete Research on the Distribution of Other Natural Chemicals and Pharmacy Studies in the Third Plant Plant is still needed to evaluate the plant for its therapeutic value. Therefore, the purpose of this review is to upgrade the current Researchers in this regard to conduct further research on this plant. Current Reviews include Flora, Websites, Information Sites, Journals and Alumni Collection Information on Various Features by Limnophilla Rugosa (Roth.) Merr.[7,4]

The solvent ether, Aqueous and alcoholic extracts of Limnophila rugosa leaves wereinvestigated for diuretic and antibacterial activity. A six-hour hard study of aqueous, ethanolic extracts showed an increase in urine volume and K + ion extraction compared to normal salt. Ac microbial activity was tested by Disk distribution method against E. coli,

Staphylococcus aureus, Bacillus subtillis, Psuedomonas aeruginosa, Salmonella typhi, Vibrio cholerae. The extract is available athas significant dose-dependent diuretic activity and is effective against gram positive and gram-negative bacteria.[12]

KEYWORDS:- Limnophilla Rugosa, Scrophulariaceae, Chemical Constituents, Biological Activity.

2. INTRODUCTION

In India, Plants Are Used As Therapeutic Agents. The Use of Herbal Remedies as a Traditional Medicine is well known in the rural areas of many developing countries. Traditional Workers The people of the Gandhamardhan Hill Tribe of Odisha Region Use the Limnophilla Rugosa (Roth.) Merr. Of the Familyscrophulariaea with a Blue Flower, in the Name of Bhringraj.[8,3]

Traditional Healers Use Limnophila Rugosa, As A Hair Oil Ingredient In Bhringraj Name And Used In Wound Healing Work. The Plants Mainly Contain Flavonoid, Triterpenoid (Steroid), Amino Acids, Alkaloids, Tannin, Phenols, Essential Oil, Carbohydrates And Proteins. rugosa and its phytochemicals show great antibodies against two bacteria. viruses such as B.subtilis and S.typhi.[21,2]

Methanolic extract of L leaf. rugosa has anti-bacterial and anti-fungal properties. Liquid extract and alcohol of L leaves.[13] rugosa has been found to show a reliance on promising abortion volume. Numerous experimental studies have reported the effectiveness of bhringaraj on liver damage against a variety of toxic substances.[5] anti-oxidant and wound healing function.[12] Lrugosa is also known as Herpestis rugosa Roth and Limnophilla roxburghii Sensu Hok.L.rugosa is used as a source for Bhringaraj but, detailed integrated experiments were not found in one place during the extensive literature search.[1,4]

A great effort was made to gather information from L.rugosa.This paper describes evidence-based information about the pharmacognosy, pharmacological activity and phytochemistry of this plant.Limnophila rugosa is a perennial plant up to 50 cm tall. In India, Plants Are Utilized As Therapeutic Agents.[12,7] Since, Time Immemorial In Organized (Ayurveda, Siddha And Unani) And Unorganized (Folk, Tribal And Native) Form. The Use Of Medicinal Plants As Traditional Medicines Is Well Known In Rural Areas Of Many

Developing Countries. People Of Small Villages And Communities Use The Folk Medicine For The Treatment Of Common Infections.[23]

The Traditional Practitioners Are Tribal People Of Surrounding Area Of Gandhamardhan Hill Region Of Odisha Are Using A Plant Limnophilla Rugosa (Roth.) Merr. Of Familyscrophulariaea With Blue Color Flower, In The Name Of Bhringraj.[26] The Traditional Practitioners Use Limnophila Rugosa, As An Ingredient Of Hair Oil In The Name Of Bhringraj And Also The Use In Wound Healing Activity. Its Leaves Paste Along With Leaves Of Tulsi Is Given Orally To Cure Urinary Burning Mainly Plants Contain Flavonoid, Triterpenoid (Steroid), Amino Acids, Alkaloids, Tannin, Phenols, Essential Oil, Carbohydrates And Proteins. previous study reported that essential oil of L. rugosa as well as its phytochemicals exhibit significant anti-bacterial potential against two bacteria such as B.subtilis and S.typhi.[10,11]

Methanolic extract of L. rugosa leaf is having anti bacterial anti-fungal activities.Aqueous as well as alcoholic extracts of L. rugosa leaves were found to show promising diuretic activity dose dependent manner.[9,2] Many experimental studies reported the efficacy of bhringraj in hepatic injury against varieties of toxicants.anti-oxidant and wound healing activity. Lrugosa is also known by its two synonyms namely Herpestis rugosa Roth and Limnophilla roxburghii Sensu Hok.L.rugosa is used as a source of Bhringaraj but,detailed combined assessment were not available on one platform during extensive literature search Hence,it was thought worthwhile to undertake detailed review study.[9]

Immense effort was made to compile the details on L.rugosa.This paper explains the Evidence-based information regarding the pharmacognosy, pharmacological activity and phytochemistry of this plant. Limnophila rugosa is an erect herb reaching a height of about 50 cm.

3. Plant profile

3.1 Taxonomical background

1	Kingdom	Plantae
2	Sub kingdom	Tracheobionta
3	Division	Magnoliophyta
4	Class	Magnoliopsida
5	Subclass	Asteridae
6	Order	Scrophulariales
7	Family	Scrophulariaceae

8	Genus	Limnophilla
9	Species	L rugosa
10	Binomial name	Limnophilla rugosa (roth) merr.

3.2 Scientific and Common names of the plant

Scientific names	Common names
Limnophila rugosa (roth.)Merr.	Bintugo (sub.)
Limnophila roxburghii g.don.	Kalaoo (bik.)
Limnophila menthastrum benth.	Patalatala (pamp)
Capraria gratissima roxb.	Tala (tag, bik.)
Herpestis rugosa roth.	Tala tala (pamp.)
Stemodia menthastrum benth.	Tara-tara (ilk.)
Tala odorata blanco	Taram-hapan (tag.) Da ye shi long wei (chin.)

3.3 Geographical distribution

This plant is distributed in open, wet areas in the highlands of lepanto, nueva viscaya, pampanga, bulcan, camarines and sarsogan provinces in luzan: palawan, panay, negros and - miganao and originates from india to malaya and polynesia.

It is distributed in wetlands and humid areas almost throughout India, rising to 1800 m in the himalayas.

He lives in Roth. (Merr.) of the family Scrophulariaceae is straight forward herbaceous, annual, 30-60 cm. high, found in wet conditions and moist

It lives in almost all of India, rising to 1800 m in the himalayan mountains.[4]

4. Macroscopy

Limnophila Rugosa (Roth) Merr. Straight Tree Up to 50cm Height.Straight Stem Or Document Below, Low Shiny Stem Capillary Multified Intermidiate Leaves 4-6 M In Whorl, Contrasting Or Alternative. Leaves Simple, Small, Separate, Lanceolate, Contraindicated, Sub Sessile, Measuring Steps About .5-4 Cm At 1-2 Cm, Serrate, Acute, Symmetrical Base, Petiole Winged Surfaceglabrous, Upper Dark Green, Lower Light Green In Color, Covered With Beautiful Hair.[1,8]

Venation reticulate, veins-hidden in the upper extremities, visible in the lower extremities, hard in the middle, sub veins 4-5, lateral veins slightly separated, a pungent odor with a strange odor. The flowers are about 1cm long in Purpush.1-1.2 cm long, single axillary, calyx lobes, ovate lanceolate, capsule 3mm long.[5,6]

5. Microscopy

5.1 Stem

The diagrammatic transverse portion of the stem is a circle on the frame showing a small pith in the center of the area around the star tissue ring and the broad arenchymatous cortex and the outer layer of the epidermis. Details T.S. shows the epidermis layer in areas with stomata and rarely shows a cuticle with a few lines, below this there are 1 to 3 rows of collenchymatous cells arranged together by a hypodermis followed by a wide area of arnchymatoous tissue covering the oval large to round holes surrounded by various parenchymatous cells. sizes and textures embedded in small-sized clusters of calcium carbonate crystals and the benefit of starch.[1,4]

The endodermis layer that surrounds the phloem is unique and composed of barrel-shaped cells with straight wave walls. Phloem is very small, Parenchymatous and contains filtered tissue, phloem parenchyma and xylem exhibit shiny structure, round to oval vessel surrounded by fibrous rays and parenchyma anduni and bi-seriate medullary rays continuously with phloem rays mainly vasicentric and a few concentrated. fat globules. The central pith is broad, parenchymatous and composed of calcium carbonate crystals.[3,9]

5.2 Leaf

Diagrammatic T.S. the passage between the midrib is externally curved on the lower side and flat or slightly compressed on the upper side. It shows an arc of the meristele located in the middle rather than a collenchymatous tissue band beneath both the epidermis and a broad extension of the dorsi-ventral laminar on its lateral side. Details T.S. shows the upper and lower epidermis covered with thic cuticle, embedded in areas with stomata and with simple and glaular trichomes commonly found in the center.

Cells in the upper epidermis are tubular in shape, large in size and unlike the lower epidermis cells, abnormal and small in size and shape. Simple trichomes are unicellular and multicellular. Unicellular trichomes are very small, short, conical and warty cuticle. Multicellular trichomes are short, uniseriate, 2-3 cells, straight curved, with a warty cuticle, a folded cell in place or with a string like number terminals. abdominal distension. The sessile glandular trichomes have a round head with 3-4 cells, a few other trichomes with a single stem and a bulbous round head. The flexible part in the middle of the midrib indicates the middle merstele. Meristele depicts rows of glistening vessels alternating with medullary rays and a small band of phloem tissue lying beneath it. A few groups of cells are found under the

upper epidermis and a layer of collenchymatous cells are found under the lower epidermis attached to the parenchymatous cells of the soil tissue and mesophyll cells in Lamina. An extra vascular bundle is located near one of the terminal terminals in the meristele.[3,9]

5.3 Root

TSof root shows a single-layer epidermis, a single-layer epidermis, a single layer of hypodermis arranged in a circle, small epidermal cells arranged in a small cuticle, 8-10 parenchyma cells connected to the endodermis forming wider air chambers, parenchyma cells rich in starchgrain., brown content, split rosette crystal, single layer of endodermis, separates cortex and substrate composed of phloem and xylem.[21,22]

Phloem is greatly reduced under the pericyclic with phloem fiber sieve features, the xylem is finely tuned to the center without making any pith, most of the xylem vessels are filled with oil globules and are composed of xylem parenchyma and its fiber separated by subtle, simple medullary rays. starch grains.[22,23]

5.4 Flowers

Wrinkled Marshweed is a straightforward, aquatic, fragrant, perennial plant, it grows up to 50 cm tall. The flowers are photographed separately on the axils of the leaves, stemless, blue and yellow in the throat. Sepals are divided into base, uneven, lanceshaped, up to 7 x 1 mm, tapering, per minutewithout bristly. The flowers are up to 1 cm long, hairy on the outside. The capsule contains a wide ovoid, 5mm tall, planted with long sepals. Wrinkled Marshweed is found in SE Asia. Indiait is found from Punjab to Sikkim, NE India up to 900 m, and South India. Flowering: August-January.[17,18]

5.5 Powder microscopy

The powder of stem is dark brown with a pleasant aroma and a pungent buttery scent. The powdery mildew is green and has a pleasant aroma and bitter aroma of the astringent. The powdered leaf extracts show a series of layer trichomes, with a 3-4 cell head and a short unicellular stem with one stem head, simple trichomes with terminal cords, cut pieces of lamina showing one or two rows of cells palisade and Parenchymatous cells under the lower epidermis of laminain surfreferences Prenchymatous sponge cells under the lower epidermis embedded with prismatic, rosette and acicular crystals embedded in a spongy parenchyma. Prismatic rosette and acicular crystals of calcium oxalate and fragments of annular and spiral vessels in leaf powder.[19,20]

Powder root microscopy shows a flexible oil, brown content, a piece of light fiber, a piece of aerenchyma cell, a piece of fiber full of oil, a globe oil, a piece of cork cell in the view, a piece of parenchyma in the earth's surface, a fragment., fragment of epidermis & hypodermis, silica deposition.[23,25]

6. Chemical constituent

1) Different phytochemicals include flavonoids, terpenoids are broken down very far from this plant.
2) A total of 45 chemicals reported. Otherwise, research The group reported that there are glycosides, alkaloids and flavonoids insideextracted ethanol and glycosides in aqueous extract from the plant.
3) The reaserch group reported the presence of glycosides, alkaloids and flavonoids in the release of ethanol and glycosides in aqeous extract.

Chemical constituents	Plant part
Flavonoid	Aerial parts and roots
Terpenoid	Aerial parts and roots
Amina Acids	Whole plant
Miscellaneous	Essential oil

In the present work, the limnophila leaf gosa leaf gel was used to test the antiinflammatory function for the purpose of the subject. The results of the present study show that the topical leaf gel is healthyrugosa has shown high efficacy against anti-inflammatory activity. It is aliverugosa gel can be used as a guide in our ongoing search for new natural productswith potentially medicinal properties. It can also be used as an easily accessible source ofnatural anti-inflammatory drugs.

7. Anti-inflammatory activity

Reddy et al. learned the anti-inflammatory function of essential oils as wellextract crude of L. conferta and vadensin (chemical component), separatedfrom the plant, to a model of acute and chronic inflammation using the method ofWinter et al. Carrageenan-induced rat paw edema compared with ‘0 ’and‘3 hours ’by control (4% gum acacia mucilage). In acute inflam-matory testsfunction, vadensin (5, 7-dihydroxy-6,8,4'-trimethoxy- flavone) has shown value inhibition (P <0.001, dose 75 mg / Kg orally,% inhibition 45.28) but no variable soil or crude extract, showing any significant activity compared to control. However, in the model of chronic inflammation, the extracellular release of L. conferta reduced (P <0.001, dose 500 mg

/ Kg / oral) weight of dry granuloma (22.1 ± 1.4 mg% of body weight) compared with the control number (36 ± 1.86 mg% of body weight).

Nevadensin (5, 7-dihydroxy-6,8,4'-trimethoxyflavone) recently reported have weak in vitro inhibitory activity against cyclooxygenase-1 and 2 (COX-1 andCOX-2) as studied in the COX catalyzed prostaglandin biosynthesis assay.Nevadensin, (5,7-dihydroxy-6,8,4'-trimethoxyflavone) was recently reported to have a weak in vitro inhibitory activity against cyclo oxygenase-1 and 2 (COX-1 and COX-2) as read in COX catalyzed. testing for prostaglandin biosynthesis.

8. Traditional use

This plant shows the use of many herbs in the traditional system. The juice of the plant is rubbed on the body in a deadly fever. Used inelephantiasis with coconut oil. It is used to treat diarrhea, diarrhea anddyspepsia. It is used as a carminative and tonic. Essential oils are used as a spicefood agent and hair oil perfumes.[8,10] The essential oils of this plant also showimportant anti-bacterial and anti-fungal activities. Plant accepted "Sugandhabala" as it responds to the Ayurvedic definition of medicine. Giving him of The leaves are used as a diuretic and stomachic in the Philippine Islands and more or lessthroughout India. Materials and methods Chemical ingredients only.

8.1 Bringaraj for liver

The active ingredients in bringaraj protect the liver from harmful chemicalsyou buy to remove AMA Doshas or toxins from the body. It also helps to rejuvenate the livercells.[3,4]

8.2 Bhringaraj for the digestive system

Bhringaraj is very beneficial in improving the performance ofgastrointestinal system.[25] Digestive and carminative properties help a person to get indigestion, absorption, similarity to waste disposal.[6] It also prevents constipationulcers, heartburn, abdominal pain, nausea, etc.[1,2]

8.3 Bhringaraj for heart

Bhringaraj has a high value in the treatment of various heart ailments due to its strengthantioxidative nature. It regulates high blood pressure, regulates cholesterol, strengthensheart muscle, prevents lipid accumulation in blood vessels, and consequently reduces stiffnessrisk of heart attack, heart block, blood clots, etc. It also plays a major role in

reducinglevels of triglycerides in the blood. Frequent use of this powerful leaf clip withhoney in water is very helpful in improving heart health.[13]

8.4 Bringaraj for pain

Bhringaraj has powerful analgesic properties that play a key role in relieving pain and inflammation which is why the medicine is widely used to relieve painarthritis and osteoarthritis.[16]

8.5 Defensive bringaraj

The amazing ayurvedic remedy holds a high value in general developmentstrength and fitness level. The active ingredients in bringaraj are reducedweakness and fatigue as well as improving physical fitness. It also develops adrenal gland function that helps reduce stress levels.[14]

8.6 Bringaraj for diabetes

The excellent hypoglycemic properties of bringaraj play an important rolelowering blood sugar levels. Insulin production fromPancreatic cells begin to function when a person takes bringaraj in the form of amake-up. It helps to reduce the breakdown of starch in glucose as wellleads to low glucose levels.[7,8]

8.7 Bhringaraj respiratory problems

Bhringaraj is full of powerful anti-bacterial propertiesis beneficial in preventing infections, which is why it plays a major role in treatmentrespiratory diseases such as cough and symptoms of fever, bronchitis, and asthma. Anti inflammatory structures help reduce bronchial inflammation as wellweight loss.[3,1]

8.8 Bringaraj for wounds

It is packed with strong antimicrobial, anti-inflammatory and anti-ulcer propertiesproperties, Bhringaraj has high value in the treatment of various types of ulcers such asStomach ulcers, canker sores or sores in the mouth, peptic ulcer, ulcerative colitis, etc. The bioactive ingredients in this plant not only promote muscle regeneration but alsohelps to bind wounds. You can use juice or paste of bringaraj leavesdirectly to the wound or make a leaf poultice and apply it to the wound immediatelywound healing.[16]

8.9 Bringaraj for memory

Bhringaraj is a traditional remedy for increasing brain function. The abundance of antioxidants and flavonoids present in it enhances memory capacity, concentration, concentration, calmness, individual awareness. Being a brain tonic too stimulant, it also develops memory, thinking, problem solving, and other comprehension skills. Neuroprotective properties in the plant prevent memory loss byincreasing mitochondrial activity, thereby preventing Alzheimer's.[13]

9. Adverse effects of bhringraj

This traditional plant has no proven side effects but one should always see one anotherayurvedic physician or physician before starting to apply the composition of bhringaraj toif it has harmful interactions with drugs that a person already hasto take. In some rare cases, a slightly higher dose of bhringaraj can lead to diarrheaproblems or heartburn. If possible, you are about to use the oil, it is recommended that you do a patch test byapplying a drop of oil on the skin to record any symptoms of itching or redness.[14]

10. CONCLUSION

The current article discusses a recent review of the pharmacognosy, pharmacology and phytochemistry of Limnophila rugosa, a useful medicinal plant from the Scrophulariaceae family that receives applications from traditional medicine systems.[5,10]

Although the results of this review promise the use of L.rugosa as a multidisciplinary drug, extensive research on the chemical composition of phytochemicals and pharmacological research in this medicinal plant is still needed to test the plant for its medicinal properties. Importance We have shown that (aqueous extract) green leaves and limnophila rugosa haveanti-inflammatory power In addition, anti-inflammatorythe inflammatory effect of leaf gel is compared with standard drug. lidocaine being used against anti inflammation in general.[20,26]

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