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A Comprehensive Pharmacognostical, Phytochemical, and Pharmacological Review of Erythrina variegata (Paribhadra)

[1]Dr. RINTO BABIN B.S.

[1]Associate Professor

[1]Department of Dravyaguna Vigyana

[1]IIMT Ayurvedic Medical College and Hospital, Meerut

ABSTRACT: -

The substance, where a thick relationship exists between the Guna and Karma, is known as Dravya. The parcels and conduct have no identity or actuality without the substance and vice-versa. Dravya is one among the Chikistsa Chatushpada and occupies a position of significance just after the Bhishag (Physician). medicine as defined by WHO is any substance or product that's used or intended to be used to modify or to explore physiological systems or pathological status for the benefit of philanthropists. Ayurveda considers medicine (Dravya) as a whole and treats the case as a whole and believes that every substance in this macrocosm is Panchabhautika in nature. Acharya Charaka has observed," In the light of this knowledge, in the world no substance that may not be used as drug." Purposiveness and rationality are the two parameters to judge and use any substance as a drug. So, any substance or admixture of substances intended to be used internally or externally for the preservation & bastion of health and forestalment, mitigation, or cure of complaint of either man or other beast, is called Dravya. Both insalubrious and medicinal substances are Dravyas in this environment.

This review gives an account of the current knowledge on morphology, Phytochemistry, and pharmacological aspects of Paribhadra (Erythrina variegata), also called Erythrina indica, a thorny deciduous tree that's generally seen all over India. A wide range of Phytochemical constituents has been extracted, mainly alkaloids, flavonoids, triterpenoids, and lectin. Different portions of this plant have been used in traditional drugs such as nervine calmative, anti-asthmatic, antacid, antiepileptic, antiseptic, anti-inflammatory, and analgesic exertion. Paribhadra also functions like a CNS depressant, smooth muscle relaxant, and hydrocholeretic. The present review work has been designed to interpret data on pharmacological actions, chemical compositions, traditional uses, Ayurvedic preparations & details of the medicinal plant Paribhadra from various Classical texts, Nighantus, and Contemporary textbooks.

Keywords: - Paribhadra, classical review, phytochemistry, pharmacognosy, pharmacology, etc.

INTRODUCTION: -

Medicinal drugs are gifts from nature to the wellness of human beings, among them, one of the potent drugs mentioned in different classical texts of Ayurveda is Paribhadra, a member of the Leguminaceae family. There are about 110 species of shrubs and trees of Paribhadra found worldwide. Paribhadra is known as the "Coral tree, " a medium-sized tree. In India, Paribhadra is abundantly found in areas like Konkan & North Canara. It's well known for various kinds of illness. Paribhadra is indigenous in the Old-World tropics, India to Malaysia, ancient westward to Zanzibar, and eastern Polynesia (the Marquesas). It's native to tropical and tropical regions of Indian Key, north Australia, the islets of the Indian Ocean, Eastern Africa, and the western Pacific Ocean near Fiji. Paribhadra is a thorny evanescent tree, substantially set up on sandy soil in coastal timber. The coral tree is well known for its cosmetic uses. Its white flower variety' Alba' has been chosen for cultivation purposes. Erythrina gives shade and improves soil as it fixes nitrogen for other tree crops such as coffee and cocoa. The species Erythrina variegata is known for its variegated & pinnate leaves, as well as its seasonal thick clusters of grabby red flowers[1-3]. given to Erythrina variegate (syn. E.Indica Lam.). Coral tree grows up to, 50- 60 ft in height. It's a wide, evanescent tree with green and yellow-variegated, 6-inch-long pinnate leaves that create a broad cover with spiny branches. Before the leaves appear in the spring season, it's decorated with beautiful red blossoms. It has thick clusters of flowers, each flower is about 2.5 inches elevation long and arranged in thick, six-inch-long racemes. It has 12-inch-long, red, and brown seedpods that contain toxic seeds. Erythrina variegata Linn. species shows alkaloids and flavonoids as major phytochemical ingredients [1]. In traditional medicine, different parts of Erythrina variegata have been used as a nervine opiate, febrifuge, anti-asthmatic, and antiepileptic. Paribhadra is veritably useful in the treatment of disease conditions like fever, inflammation, bacterial infection, helminthiasis, cough, cuts, and injuries, as shown in some clinical trials. Description of the drug Paribhadra is available in various Nighantus and Samhitas like Raja Nighantu, Madhava Nighantu, Ashtanga Nighantu, Susrutha Nighantu, Madanapala Nighantu, Bhavaprakasha Nighantu, Susrutha Samhita, etc. Acharya Susrutha has mentioned the use of Kshara or alkali preparation in the case of Udakameha[4], krimi[5], vata vyadhi[6], and in visha chikitsa too[7].

Historical background:

No much references of Paribhadra were found during vedic period but more and more references of it were seen during Samhita kala and later during Nighantu kala. During this period some people were using the leaves of Paribhadra instead of Nimba and some other people were using it instead of Devadaru.

History: Paribhadra has been mentioned in Brihatrayees as follows-

Sushruta Samhitha

Susṛutha mentioned in Pūtana pratisheda adhyāya[8], Krimirōga pratisheda adhyāya[9] ,Mutrāghāta pratisheda adhyāya[10], Jāṅgama visa-vijnaniya adhyāya[11], Dundubhi svanīya kalpa[12], Vāta vyādhi chikitsa[13], Pramēha prathiṣheda adhyāya [14].

Ashtanga hridaya

Aṣṭānga hridayā has mentioned it in Mūtrāghāta adhyāya [15], Bālagraha pratiṣhēda Adhyāya [16].

Astanga Sangraha

Aṣṭānga sangraha has mentioned it in kṣārapāka vidhi Adhyāya[17], Dūtādi vijñānīya Adhyāya [18].

References from Nighantu:

In Nighantus, the references of synonyms, rasa, guna, karmas, etc were given as follows:

1) Madanapala Nighantu[19]

"Paribhadro nimba vraksho raktapushpa prabhadrakah

Kantaki parijata syat mandara kantakimshukah

Paribhadrah krimi sleshma medah,sleshma anilapaha"

According to Madanapala nighantu, Paribhadra, nimbavruksha, raktapushpa, prabhadrkah, kantakiparijata, mandara, kantakikimshukah are the synonyms of Paribhadra. It is used as Krimipranuth, sleshma- medohara and sleshmanilapaha.

"Paribhadro aniloanilasleshma kaphamedonilapahah"

Paribhadra is tridoshahara, especially Kaphanilapaha.

2) Bhavaprakasha Nighantu[20]

"Paribhadro nimbataru mandarah parijatakah

Paribhadro anilasleshma shotha medah krimipranut

Tat patram pittarogaghnam karna vyadhivinashanam"

Paribhadra, nimataru, mandara, parijataka are the synonyms of Paribhadra. It is anilasleshmahara, shothahara, medohara and krimipranut. Its patra is pittarogaghna and also used in Karnavyadhi.

3) Nighantu Adarsha[21]

"Karnikarastu paalashapatrah syat swalpakantaki

Sashimbo raktakusumo bhavet bhudharasannidhou"

The Rasa, Guna, veerya, vipaka of the drugs were mentioned.

Nomenclature:

Sanskrit - Paribhadra.

Family - Leguminosae

Subfamily - Papillionaceae

Latin Name - Erythrina vareigata

Genus - Erythrina

Speceis - vareigata

Vernacular names[22]**:**

Sanskrit – Paribhadra, Phala Bhadara, Rakta Kesara, Kantaki.

English – Coral tree/ Indian coral tree.

Hindi – Pharahada, Dadapa, Mandar.

Kannada – Haluvana.

Malayalam – Mullu Murukku..

Marathi – Paangara.

Gujarathi – Paraaru.

Dravadi – Pamgira.

Telugu – Baadhachipa chettu.

Tamil – Kaliyana.

Table No: 1 Showing Synonyms of Paribhadra in Various Texts:

Sl. No	Synonyms	S. S	A. H	M. N	SO. N	R. N	K. N	B. P. N	Sh. N	N. A	H. D. N	D.G (P.V)
1	Paribhadra	+	+			+	+	+	+	+	+	+
2	Nimbadruma						+					
3	Nimbataru					+		+	+			
4	Kantaki						+					
5	Mandara					+	+	+	+	+		
6	Prabhadra						+					
7	Parijathaka					+	+	+				
8	Paalasha				+	+			+			
9	Raktakusuma				+	+						
10	Raktapushpa								+			+
11	Bahupushpa					+						
12	Prabhadraka								+	+		
13	Kantakimshuka			+					+		+	
14	Kantaki Parijata			+					+			
15	Krimighna					+						
16	Rohita											
17	Raktakesara					+						
18	Bhudarasannidhou				+							
19	Karnika				+							

20	Swalpakantaki				+							
21	Sashimbo				+							
22	Padhotpala			+								
23	Pleehaghna											
24	Kantakipalasha											+

SS- Susrutha Samhita, AH- Astanga Hridaya, MN- Madanapala nighantu, SN Sodhala Nighantu, R N- Raja Nighantu, K N- Kaiyyadeva Nighantu, B P N-Bhavaprakasha Nighantu, Sh N-Shaligrama Nighantu, H D N-Hridaya Deepika Nighantu, N A- Nighantu Adarsha, DG PV- Dravyaguna Vigyana Priyavat Sharma.

Varieties of Paribhadra:

1. Erythrina vareigata Linn.
2. Erythrina indica Lamk.
3. Erythrina mysorenses
4. Erythrina suberosa
5. Erythrina stricta Roxb.
6. Erythrina subumbrans Hassk.

Rasa, Guna, Veerya, Vipaka and Karma[23]

Rasa – Tikta, Katu.

Guna – Laghu.

Veerya – Ushna.

Vipaka – Katu

Doshaghna Karma[24]**:**

Kapha-Vataghna

Part Used[24]**:**

Bark, leaf, and, root of the plants are used according to the need.

Dosage of the Drug[24]**:**

Kwatha of Bark – 50-100ml

Phanta of leaves – 2-8 drops [Indian Materia Medica]

Swarasa of leaves – 5-10ml

Kwatha of leaves – 50-100ml [classical uses of medicinal plants]

Anupana – Madhu.

Karma: [25]

Shothahara, Vrana shodhana, Nidra janana, Rakta Prasadana, Arthava janana, Rechana, Deepana, Pachana, Ruchya, Anulomana, Shoolahara, Krimihara, Muthra janana, Vajikarana, Jwaraghna and Kushtaghna. Amlapittaghna.

Rogaghnata:[25]

Shophahara, Medorogahara, Krimighna, Karnavyadhi nashana, Pramehaghna, Amathisaraghna, Rakthathisaraghna, Jwaraghna, Amlapittahara, Mutraghatahara, Phirangarogaghna, Netrarogahara, Sandhivataghna, Swasahara, Kasahara, Gulmaghna, Pleehaghna, Arshoghna Vranaghna and Shoolaghna.

Distribution:[26]

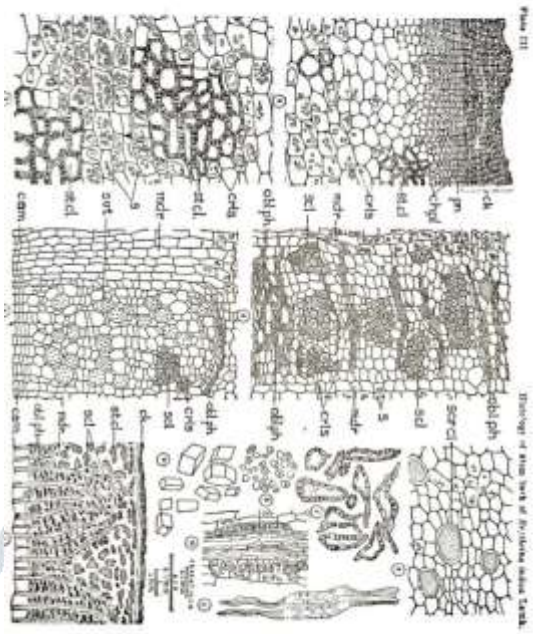
The plant is found throughout India. It is common in Assam, Bengal, Konkan, North-Canara, Madras, and Kerala. It is also distributed in Africa, Madagascar, Sri Lanka, Burma, Thailand, Cambodia, Laos, Vietnam, and China and throughout Malaysia.

Morphology of Paribhadra[26,27]

Unarmed, large, deciduous tree, branchlets stellate-pubescent; leaves alternate, pinnately 3- foliate, stipulate; leaflets rhomboid-ovate, acuminate, inequilateral, up to 17 x 17 cms, flowers bright red in clustered racemes at the tip of branches; calyx tubular, spathaceous, 5 toothed at the apex in bud; corolla papilionaceous, much exserted; stamens 10, exserted; ovary superior, long-stalked, unilocular with 10-15 or more ovules, style incurred at the apex ending in a capitate, glutinous stigma; fruit a stipitate, falcate, linear, cylindrical, turgid pod, compressed between the seeds, with a sharp curved beak.

Histology of Stem Bark[27] **:**

The outermost tissue is the cork which ranges in thickness from 190 microns to 800 microns, which is light cream and comprised of stratified cells. Phellogen consists of a single row of thin narrow, tangentially elongated cells and next within a Phelloderm composed of five or six rows. These cells are nearly cubical or rectangular. The cells of peripheral rows contain small chloroplasts. A few cortical cells contain prismatic rhomboidal or rectangular crystals of calcium oxalate. A prominent feature of the cortex is the presence of very thick-walled stone cells. Surrounding these stone cells are rhomboidal crystals of calcium oxalate. The Bast or Phloem extends in the form of narrow radial strips in between the medullary rays to about four-fifths of the width of the bark or to very near their distal ends in each group of the converging medullary rays. Distinct cambium is also present. Medullary rays are many which are prominent and mostly multiseriate being composed of 8 to 20 rows of cells. Most of the rays are long while a few are short, almost all the cells of the medullary rays except a few at the innermost region contain starch grains, both simple and compound similar to those in the cortex.

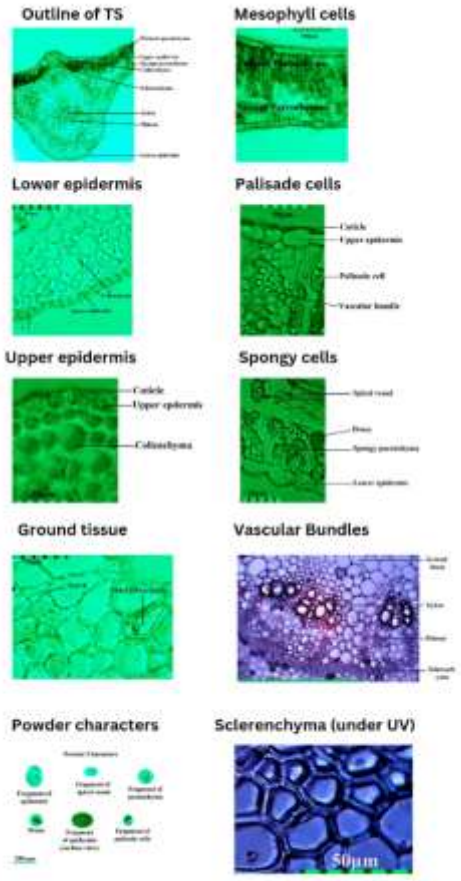


Histology of stem bark(Erythrina variegata)

Pharmocognosy of Erythrina variegata[26,27]:

The bark has no taste and is odourless. The cork comprises about 25 layers of cells with a narrow cortex. The phloem has sieve tubes, companion cells, a group of phloem fibres, medullary rays, phloem parenchyma, and secretory cells. Prickles on maceration show several sclereids. The powder shows sclereids, fibres, patches of cork cells, fragments of sieve tubes, medullary ray cells, parenchyma cells, a little free starch, and prism of calcium oxalate, and fragments of lignified tracheary elements.

The leaf of Paribhadra is dorsiventral with an oval midrib region, and the upper epidermis is projected outside. Both the epidermis are covered with cuticle. Loosely arranged spongy chlorenchyma tissues present towards the lower epidermis. Midrib consists of vascular bundles and is surrounded by parenchymatous tissues.



Microscopical characters of Erythrina variegata(Leaf) T.S

Pharmacological activities:

Anti-hyperlipidaemic studies on leaf extract of Erythrina indica Lam:[29]This study aimed to evaluate the anti-hyperlipidaemic activity of aqueous extract of Erythrina indica leaf, result shows that total cholesterol, triglycerides, and low-density lipoprotein level are reduced and in high-density lipoprotein level in the high-fat diet which in dual hyperlipidaemia in rat shows significant.

Analgesic activity of methanolic extract of the leaf of Erythrina variegata:[30] The analgesic activity was determined by the radiant heat tail-flick model in mice.7 Morphine was used as the standard analgesic agent. Tail-flick latency was assessed by the analgesiometer result shows that in the radiant heat tail-flick model, the extract also showed a significant increase in the tail-flick latency at a dose of 500 mg/kg body weight with 36.02% elongation of tail flick time.

Anti-diarrheal potential of Erythrina indica Lam:[31] The present study was undertaken to evaluate the effect of ethanol and aqueous extracts of Erythrina indica leaf for its anti-diarrhoeal potential against several experimental models of diarrhoea in albino Wistar rats. The anti-diarrhoeal activity of ethanol and aqueous extracts of Erythrina indica lam leaf at 500 mg/kg dose level was evaluated using castor oil-induced diarrhoea model in rats. The results point out the possible anti-diarrhoeal effect of the leaf extracts and substantiate the use of this herbal remedy as a non-specific treatment for diarrhoea in folk medicine.

Anticonvulsant studies on leaf extract of Erythrina indica Lam:[32] The experimental study was used to analyze the anticonvulsant property of the leaf extract of Erythrina Indica in mice and albino rats, to verify

the traditional remedy of the plant in the management of epilepsy. The chloroform extract and the aqueous extract of the leaf of Erythrina indica also produced significant protection against MES-induced convulsions in mice and albino rats.

Hypoglycaemic activity of Erythrina variegata leaf:[33] The study was used to evaluate the hypoglycaemic activity of methanol extract of Erythrina variegata leaf in streptozotocin-induced diabetic Wistar rats. The result shows that the trial drug at the doses of 300, 600, and 900 mg/kg orally significantly and dose-dependently reduced and normalized blood glucose levels as compared to that of the STZ control group; the higher dose being the most potent showing complete normalization of blood glucose levels. Serum biochemical parameters including lipid profile were significantly ($P < 0.01$) restored become normal levels in META-treated rats as compared to STZ control animals.

In vitro evaluation of the free radical scavenging activity of Erythrina indica leaves:[34] The research was conducted to assess the anti-oxidant and free radical scavenging activities of methanolic leaf extract of Erythrina indica. This study indicates that all the parameters like 1.1diphenyl, 2 picryl hydrazyl assay, reducing power, nitric oxide scavenging activity, total flavonoid content, and total phenolic content were found to be concentration dependent and increased with increasing amounts of samples.

Hepatoprotective potential of Erythrina indica leaves:[35] The study used to evaluate the anti-hepatotoxic potential of Erythrina indica against ionized and rifampicin-induced hepatotoxicity in rats. The result shows that the drug significantly prevented the drug-induced increase in serum levels of hepatic enzymes, a significant reduction in lipid peroxidation in the liver tissue, and restored activities of anti-oxidant enzymes GSH, SOD, and CAT, towards normal. So, study concluded that the dug can protect the liver from injury.

Antiulcer activity of methanol extract of Erythrina variegata Lam:[36] The experimental study was conducted to assess the anti-ulcer activity of methanol extract of Erythrina indica Lam. leaves in pylorus ligated and indomethacin-induced ulceration in the albino rats. With various parameters viz, gastric volume, PH, total acidity, free acidity, and ulcer index. The result shows a significant decrease in gastric volume, free acidity, and total acidity. Results of the study show a significant decrease in the number of ulcers and ulcer score index.

Anti-inflammatory Activity of the Leaf Extracts of Erythrina variegata:[37] The present study was used to evaluate the anti-inflammatory properties of aqueous and alcoholic extracts of the leaves by in vitro method. The chloroform and water extract at 100 and 200µg concentration respectively showed potent activity when compared with diclofenac sodium the drug which selected as standard.

Diuretic activity of leaves of Erythrina indica. Lam":[38] Diuretic activity of ethanol, chloroform and ethyl acetate extract of leaves of Erythrina indica were studied and compared with standard drug furosemide. The result shows all three extract exhibit significant diuretic activity by increased total urine volume and the urine concentration of Na^+, $K^+$and Cl^- as the main evidenced data.

Some other special uses/ Therapeutical administrations of Paribhadra:

- The 'kshara' ash extracted from Paribhadra bark in combination with madira or wine and powders of cinnamon bark, cardamom and pepper is indicated to bring relief in retention of urine. Taking the 'kshara' with molasses as an electuary is equally efficacious.
- Juice of the bark used internally cures brachial atrophy or arthritis of the joint.
- According to Jyotsnika, a Malayalam publication, the exudation from the bark of Paribhadra with asafoetida, pepper, and sweet flag is said to remove the poison of cobra bite.
- In the diseases of Udakavaha srotas, the kwatha is prepared and used as Peya.
- In a disease of children called 'Poothana', the kwatha of Paribhadra is given for drinking.
- In Amlapitta, the kwatha of Paribhadra with Amalaki is prepared and given as Peya.
- In the disease Apabahuka, the swarasa of Paribhadra is used.
- In the disease of kaphajanya netra shoola, Paribhadra twak, Kanji, Saindhava lavana, thaila etc is mixed properly and poured to eyes in required quantity.
- In one context it has been mentioned that minute root of Paribhadra is kept in vagina for easy labour.
- In Grahapeedita shishu the Paribhadra is sprinkled over the baby's body.
- The root is used as an emmenagogue and the pounded root when given with milk acts as an Aphrodisiac.
- The bark is used in curing dysentery and is useful in the preparation of collyrium which is used in relieving Netra vikaras.
- The bark is bitter, acrid, thermogenic, anti-inflammatory, sedative, vulnerary, carminative, anti-bilious, digestive, stomachic, anthelminthic, haematinic, expectorant, diuretic, rejuvenating, depurative and febrifuge.
- The flower is used in Karna vyadhi.
- According to Sushruta, the root of this drug is one of the anti-dotes in snake bite.
- The Tamil Vaidyas, use the juice of leaves mixed with castor oil for curing acute or chronic dysentery.
- Fresh juice of the leaves with a few drops of honey, taken two times a day acts as a good vermifuge for round worms, tapeworms.
- Intake of Paribhadra swarasa daily in the morning controls Diabetes by reducing the sugar level within a very short time.
- Bark in the form of decoction taken orally daily by women reduced infertility and induced capability of conception. Decoction is also useful in dysmenorrhoea.
- Swarasa increases the secretions of milk if taken during the period of lactation.
- The juice of leaves decreases painful and burning micturition.
- Decoction of the leaves of Paribhadra along with other ingredients is useful in chronic dyspepsia.
- Leaves are chopped well and mixed with triple the quantity of rice straw (chopped as well) and given especially to milch cattle as it is or better if it is still boiled with the little rice.
- Tendril leaves are better for their food value and are unsurpassed stuff for mixing with rice straw.
- Leaf paste is used to treat fresh cuts and wounds.
- It has antagonistic action to strychnine due to the presence of erythrine and may be used as an antidote to strychnine poisoning.

Substitutes and Adulterants[26,27]:

Erythrina suberosa Roxb. and Erythrina stricta Roxb. are reported to be used as substitutes for Erythrina vareigata.

Formulations and Preparations[24]:

Paribhadravaleha, Ksharagada, Shrigopala taila, Paneeya vati

Toxicology[26,27]:-

LD50 of the total alkaloid of the stem bark was found to be 87.5 mg/kg in albino rat.

Propagation and Cultivation[26]:

It is cultivated in gardens as an ornament. The plant is propagated by cuttings or seeds. Fairly large branches up to 2 cm long and 8 cm in diameter develop roots readily when stuck in the ground. For raising plants from seeds, ripe pods are collected in June, and seeds are taken out and sown 10-15 cm apart in nursery beds. Seedlings attain a height of 10-15 cm in one year. When they are dug out, roots and tips are pruned and stems planted.

Phyto Chemical constituents[26,28]:

Erythraline, erythrosine, erysotrine, erysodine, erysonine, ersotrine, 11-hydroxy erystrine, erysopine, erysotine, erysopitine, erysodienone, stachyadine, n-norientaline, erybidine, ferulic and, N-dimethyl tryptophan methyl ester, scoulerine, coreximine, 1-reticuline, erybidine, erythrins A, B and C, isoflavone, exyresveratol, erythranine, rutin, quercetin, isorhamnetin-3-0-rhamnoglucoside, quercetin-4-0-glucosyl-1-3-0- rhamnose glucoside, wighteone, osagin, docosyl alcohol, stigmasterol, sitosterol, choline, fatty acids, saponin, betaine, 8-sprolamine alks, 3 carboxylated indole-3-alkylferulates, acid phenolates and sterols and isoquinoline alkaloids, erythrosotidienone and erythromotidienone (seeds, flowers, leaves and bark)

Table. No.1 Showing Qualitative Tests (Hydroalcoholic Extracts) of Leaves of *Erythrina variegata* Lam**.**

Physico-Chemical Parameters	**Leaves of *Erythrina indica* Lam.**
Foreign matters	**3.50%**
Loss on Drying at 110°C	**8.25%**
Total Ash	**6.25%**
Acid Insoluble Ash	**1.12%**
Water Soluble Ash	**2.25%**
Alcohol Soluble Extractives	**9.80%**
Water Soluble Extractives	**19.55%**

Table. No.2 Showing Physico-Chemical Parameters of Leaves of *Erythrina variegata*

Compound	**Leaves of *Erythrina indica* Lam.**
Carbohydrate	**Present**
Protein	**Present**
Alkaloid	**Present**
Tannin	**Present**
Flavonoids	**Present**
Steroids	**Present**
Terpenoids	**Present**

Table. No.3 Showing Florescent Tests of Leaves of *Erythrina variegata* Lam.

	Color Under Visible Light	**Color Under Long UV**
Sample	Mud green	Green
Sample + Water	Yellowish pale green	Dark green
Sample + Methanol	Green	Fluorescent orange
Sample + 10% NaOH	Pale green	Yellowish brown
Sample + 10% HCl	Pale yellow	Pale yellow
Sample + 10% HNO_3	Pale greenish brown	Brown
Sample + 10% H_2SO_4	Pale greenish brown	Brown
Sample + 10% NH_3	Yellowish green	Pale green

Thin Layer Chromatography

TLC-1. Leaves of *Erythrina variegata* Lam.

Solvent System: Toluene: Ethyl Acetate: Formic Acid- 10: 3: 1

Spraying Agent: Anisaldehyde Sulphuric Acid

Before Spray

Rf	Under Long UV	Under Visible Light
0.09	Pale blue	---
0.37	Pale fluorescent blue	---
0.52	Pale fluorescent blue	---
0.81	---	Bluish grey

After Spray

Rf	Under Long UV	Under Visible Light
0.09	Pale blue	---
0.37	Pale fluorescent blue	Pale yellow
0.52	Pale fluorescent blue	---
0.81	Red	Creamish orange

Before Spray Under Long UV

Before Spray Under Visible Light

After Spray Under Long UV

After Spray Under Visible Light

Images of Thin Layer Photography

(Before and after Spray-Under Long UV and Visible light)

DISCUSSION: -

Paribhadra(Erythrina variegate) is one of the highly potential drug available, which has significant pharmacological as well as phytochemical interest. Here is a detailed discussion of the Pharmacognostical, pharmacological, and phytochemical aspects of Erythrina variegata.

Pharmacognostical Aspect: -

The Pharmacognosy aspect of E.variegata highlights its potential as a valuable source of therapeutic agents due to its diverse phytochemical profile and broad pharmacological activities. In classical texts as well as in nighantus, we can get detailed information the drug like about its morphology, useful parts, synonyms, etc.

Phytochemical Profile: -

Erythrina variegata contains a variety of alkaloids, which have nitrogenous compounds in them, often associated with biological activities. Erysotrine, an alkaloid present in it, has been studied for its different therapeutic effects. Flavonoids present in Erythrina variegata like quercetin and kaempferol have antioxidant properties that may contribute to its anti-inflammatory and anti-microbial effects. Saponins and glycosides present in Erythrina variegata often have biological activities including Immuno modulatory effects as well as anti-inflammatory effects. Terpenoids produced by Erythrina variegata, often have a role in the defence mechanisms like anti-microbial actions. Polyphenolic compounds like Tannins present in the Erythrina variegata are known for their ability to interact with the proteins and have been studied for their anti-microbial and anti-inflammatory effects. Phenolic compounds present in Erythrina variegata have a wide range of antioxidant properties, which are important for their potential to combat oxidative stress and related illness.

Pharmacological Actvities:-

Various Classical textbooks, Nighantus of Ayurveda explain the rasa panchaka, dosha-dhatu-mala karma, different indications, formulations, matra(dose), and amayika prayoga(therapeutical administration) of Paribhadra (E.variegata)

Extracts and other forms obtained from different parts of Erythrina variegata like seeds, leaf, and bark showed Anti-microbial activity, which effectively acts against different microbes like bacteria, fungi, and viruses. The anti-inflammatory activity of E.variegata is attributed to its phytochemical constituents like flavonoids, saponins, and alkaloids which inhibit inflammatory modulators and reduce inflammatory conditions. E.variegata containing phenolic compounds, flavonoids, and other anti-oxidants helps in neutralizing free radicals, thus protecting the body tissues from oxidative damage and potentially reducing the risk of chronic conditions. The analgesic activity of E.variegata is likely related to its anti-oxidant and anti-inflammatory activities. The extracts of E.variegata have shown their effectiveness in the cases of Diabetes Mellitus, also in drug or toxin-induced hepatic toxicity conditions. E.variegata may have neuroprotective properties which could be useful in protecting against neuro-degenerative conditions too.

CONCLUSION: -

E.variegata, with its vibrant appearance and rich phytochemical constitution, stands out as a significant drug in both classical and contemporary medicinal contexts. Its diverse range of phytochemical constituents including alkaloids, tannins, saponins, terpenoids, flavonoids, phenolic compounds, etc contributes to its impressive pharmacological activities. While its traditional uses and preliminary research suggest significant promise, a detailed scientific investigation is required to fully harness its benefits and to ensure its safety for a wide range of clinical applications. Through rigorous scientific investigation and quality control studies, E.variegata become a significant contributor to the field of natural product-based therapeutics.

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