

Use of Traditional Plant Parts as Anti-Inflammatory Drugs by The Tribal People of Tripura, India

Abstract: Information related to traditional use of medicinal plants for various diseases used by the Tribes of Tripura are very limited. These information are very confined to the local medicine men and are getting lost gradually which needs to be documented for the benefit of mankind. Attempts have been made to collect names of some traditional plants used by the local tribes. Study was carried out based on field survey covering a period of 1 year, starting from July, 2022 to July, 2023 by questionnaires among the Tribal medicine men with physical verification and observations.

Keywords: Tribal, Tripura, Traditionally used plants, As anti-inflammatory

Inflammation is our body's defence mechanism which uses to protect our body by giving signals for different types of infection, allergies or other harmful stimulus. As many people are suffering from different inflammatory and other related allied diseases likely diabetes, obesity, heart diseases, arthritis, gout, inflammatory bowel diseases, psoriasis, Alzheimer's and others in their daily life, it is better to use natural anti-inflammatory drugs rather than synthetic drugs, so as to avoid different adverse affects of other synthetic drugs.

In rural India traditionally used medicinal plants are being the sources of healthcare system since B.C. era including north-east India. Tripura, one of the NE states of India is enriched with plant diversity and is one of the biodiversity hotspots of the world.^{1,2,3} Various traditional medicinal plants with anti-inflammatory activities have been shown to be effective in the treatment of inflammatory conditions. Here - an initiative has been taken to document various such plants having anti-inflammatory activities from the areas of South Tripura District. Total 29 number of plant and their parts are reported accordingly.

Aim and Objectives:

1. To focus on the better use of natural anti-inflammatory drugs rather than synthetic drugs.

2. To record various traditional medicinal plants with anti-inflammatory activities used by the tribal people of Tripura, India.
3. To document various such plants having anti-inflammatory activities from the areas of South Tripura District.

Materials and Method: Study was carried out based on field survey covering a period of 1 year, starting from July, 2022 to July, 2023 by questionnaires among the Tribal medicine men with physical verification and observations. Name of the plant, Description of plants, Parts used, Preparation and Therapeutic uses are recorded and presented in tabular form in the part of Results.

Results and Discussion: Relationship between plants and humans are very old. Humans are dependent on plants and animals for their food and different medicinal values since long back. It has been seen that almost 25% of prescription drugs contains active constituents from natural sources⁴.

The present study shows that the tribal people of Tripura have great knowledge of medicinal values of different traditional plants and their application in different acute or chronic diseases⁵. Therefore, even after development of modern allopathic medicines, tribes of Tripura are relying on traditional plant medicines which are very promising and investigation for new plants continues. Such practices may be helpful for development of new drug molecule. Recent development of interest in herbal drugs due to their efficiency against different health problems invites prompt attention towards medicinal plants. So -these types of plants need to be saved or cultivated before they get damaged for the beneficial of mankind, or it will be too late^{6,7}.

Summary and Conclusion: The cost of allopathic medicines are increasing day by day, also they are having various side effects. As many tribal people are living in remote rural areas and in the vicinity of forests and they are having faith in their traditional treatments, herbal drug technology may open new doors in this area. Lacking of interest, lack of communication and reluctant to gather knowledge in traditional plant medicine in younger

Table-1: Name of the Plant (Scientific and Local), Parts Used, Description of Plants, Preparation and Therapeutic Uses

Sl. No.	Scientific name of the plant (Family)	Name of the plant in Tripuri (tribal language)	Parts used	Description of plants	Preparation	Therapeutic uses
1	<i>Dillenia indica</i> (Dilleniaceae)	Thaipolak	Fruit	Trees evergreen, about 30m high with rather crooked trunk and irregular branches forming the crown; wood red. Leaves petiolate, oblanceolate, glabrous above, pubescent beneath, serrate, flowers large. Fruit 7-13cm in diameter.	A decoction of the fruit	used in pyorrhoea for gargling
2	<i>Cajanus cajan</i> (Papilionaceae)	Muimasing.	Leaves and seeds.	An erect shrub upto 3 m height, with many silky brances. Leaves 3 foliolate, gland dotted beneath; leaflets oblong-lanceolate, acute, entire densely silky beneath; Flowers in loose corymbore cymrs or in a terminal panicle. Ped 5-7 cm long, seeds yellow or black.	Juice of the leaves, paste of seeds and leaves,	Jaundice, inflammation and swelling.
3	<i>Clitoria ternatea</i> (Papilionaceae)	Krishnakali	Flowers, roots	A slender twiner. Leaves 8-12 cm. long, pinnately foliolate leaflets 2.5-5 cm, elliptic or ovate, obtuse, subcoriaceous, petiole about 2 cm. long, stipules persistent, flowers blue or white, solitary or axillary peduncles; bractecles large foliaceous, peristent. obtuse, pod flat, linear. about 8 cm. long flowers often double under cultivation.	Juice of root and flower	Painful micturition and constipation of children.
4	<i>Bocrhavia diifusa</i> (Nyctaginaceae)	Purnadalak/ Tuisa jalap	Whole plant	Herbs difiuse, leaves in unequal pairs, broadly ovate, whitish beneath. Flowers very small, rose coloured, sessile or nearly so in heads on slender peduncles from the leaf axils and axillary and terminal panicles. Fruit a nut, clavate, 5 ribbed glandular	A decoction of the whole plant	Scanty micturition, burning micturition and swelling of legs and oedema.
5	<i>Moringa oleifera</i> (Moringaceae)	Sajan	The root of the young tree, seeds.	A rapidly growing soft-wooded tree. Leaves somewhat crowded towards the top; leaflets ovate, obovate or oblong, rounded or slightly emarginated at the apex. Flowers white, fragrant. Capsule pendent, 18-45 cm long, seeds winged.	Paste of root of young tree, oil extracted seed.	Chronic rheumatism, intermittent fever, epilepsy, hysteria, dropsy, joint pain.
6	<i>Bombax ceiba</i> (Malvaceae)	Borchuk	Root, thorns.	Trees are very large, deciduous, with a straight cylindrical stem and horizontally spreading branches in whorls, buttressed at the base and with hard conical prickles; bark grey leaves digitate, leaflets 5-7. lanceolate long, petioled. Flowers upto 7.5 cm. long, red, stamens less than 100, filaments flat. Capsule 10-15 cm. long, oblong, velvety, 5 valved, seeds numerous, surrounded by masses of white silky hairs.	Juice of the root with sugar.	Burning micturition with pain, spermatorrhea and in pimples.
7	<i>Hibiscus macrophyllus</i> (Malvaceae)	Lambak	Stem and the roots	Trees small, deciduous, with long tufted yellowish brown bristles and -stellate tomentum. Leaves 18-30 cm. across, orbicular, deeply cordate, acuminate, entire or minutely crenate, palmately 7-9 nerved; petiole slightly longer than the blade stipules large. oblong, convolute. Flower large, about 8-10 cm. across, in axillary and terminal cymes. Capsule oblong, 3.5-3.8 x 2.5 cm., pointed; seeds teardrop with hairs.	Fresh juice of the bark.	Blood dysentery, dysentery, scanty and painful micturition.

8	<i>Hibiscus rosasinensis</i> (Malvaou)	Jaba	Bud and root	Shrub, large leaves 6-12 cm. long, ovate, acute, more or less serrate glabrous or with few scattered hairs on the venis beneath, 3 nerved at the base. Flowers rose red, in upper axils on short or long jointed peduncle anther unilocular, horse shoe shaped, longitudinally dehiscent.	Buds pasted and taken with rice wash water and watery extract of the roots.	irregular menstruation
9	<i>Jatropha curcas</i> (Euphorbiaceae)	Keron	Stem	A soft wooded deciduous shrub. Leaves 7.5-15 cm. wide, suborbicular, ovate or cordate, 3-5 lobed, shortly acuminate or acute, glabrous or sparsely pubescent on the nerves beneath; petiole 7.5-22 cm. long. Flowers greenish yellow, in long peduncled panicle, pubescent cymes Styles connate at the base, stigma biûd. Fruit about 2.2-3 cm long.	Fresh juice of the stem, and the tender stems.	Blood dysentery and in pyorrhoea as tooth brush
10	<i>Ricinus communis</i> (Euphorbiaceae)	Letak	Bark, leaves, seeds.	An evergreen soft wooded shrub or almost a small tree; young parts covered with a glaucous bloom. Leaves alternate 15 cm across, palmately lobed, peltate serrate, membranous, petiole as long as the lamina, stout. bollow, Flowers monoecious, in ter- minal paniced racemes; males crowded on upper part of raceme. Capsule of 3 bivalved cocci. Seeds oblong with large caruncle.	Fresh juice of the bark and leaf.	Rheumatic arthritis, mild laxative, purgative and in making contraceptive jellies and Creams.
11	<i>Shorea robusta</i> (Dipterocarpaceae)	Shal	Bark of the plant	Trees large, with narrow conical crown when young, but with broad spreading crown when mature; generally deciduous but seldom fully leaf- less; young shoots buff tomentose, bark dark grey or dark brown. with deep irregular furrows. Leaves at ûrst red or pinkish, afterwards pale green, then dark green; old pale yellow, drying brown, 10-3"3×5-18 cm.	Bark boiling with water and exudes from incisions made in the bark.	Gargling in case of pyorrhoea
12	<i>Cissus quadrangularis</i> (Vitaceae)	Naljora.	Stem	Climbers large, stem quadrangular, fleshy, con- tracted at the nodes. Leaves simple, 2.5-3.5 cm, across, cordate, or reniform, shortly petiolate; tendril long, simple, leaf opposed, ûowers whitish, tetramerous, in umbellate cymes.	Paste of stem	Fracture of the bone.
13	<i>Plumeria rubra</i> (Apocynaceae)	Golachi	White latex of the stem	Trees small, dichotomously branching. Leaves generally 6-8 cm wide, obovate, obtuse or shortly acuminate, glabrous beneath, with conspicuous mar- ginal vains. Flowers white with yellow centre, very fragrant, 5 cm. or more acrees, in terminal cymes which are shorter than the leaves.	Raw Milky latex of the stem.	Glandular inflammation, boil, absceses and applied externally in tonsilitis.
14	<i>Calotropis gigantea</i> (Aselepiadaceae)	Angan	Leaves and root	Plants are perinnial large shrubs with milky latex. Leaves simple. opposite and decussate, rarely whorled, exstipulate leafblade obovate entire. Inûorescence cymose. Flowers actinomorphic, bisexual, pentamerous and hypogynous, sepals 5, united in deeply partite calyx. Stamens 5, Fruit of two follicles, seeds comose with scanty cartila- gious_ endosperm; embryo large.	Decoction	Rheumatic arthritis and colic pain.

15	<i>Vitex negundo</i> (Verbenaceae)	Nishinda	Leaves	Shrubs with ashy white thin bark and aromatic smell, young shoots grey pubescent. Leaves digitately 3-5 foliolate, flowers lavender to blue on elongated panicles. Drupe about 5 mm across, ribbed gland dotted.	Juice of the leaves and paste of leaves.	Painful rheumatic swellings and as a cooling application on forehead in headache.
16	<i>Piper longum</i> (Piperaceae)	Pepui	Fruits	Herbs trailing or climbing. Leaves 2.5-10x 1-6 -cm. ovate, cordate, acuminate, membranous, glabrous, 5-7 nerved, petiole 0.5-2.2 cm. long. Male spikes slender, yellow. Fruiting spike 1.8-2.5 x 6-7.5cm. fleshy.	Powdered long pepper administered with honey	Cough and cold, asthma, hiccup, dyspepsia, paraplegia, arthritis and also as a local application for relaxing sore-throat, piles and skin diseases.
17	<i>Achyranthes aspera</i> (Amaranthaceae)	Uttar lengra	Roots	Perennial stiff herb. branching from the base, stem thickened above the nodes. Leaves opposite, petiolate, variable, 2.5-12-5 cm. long. usually elliptic, oblong or ovate, narrowed at the base, adpressed pubescent; lateral nerves 6-8 on each side. Spikes terminal, erect; spines short, often tinged with purple.	Water extract	Loose motion, piles, boils, skin eruption, and colic pain etc.
18	<i>Amaranthns spinosus</i> (Amaranthaceae)	Kata maira	Whole plant	Annuals much branched, armed with sharp axillary spines, glabrous or slightly pubescent. Leaves alternate, ovate to lanceolate, lower ones larger and long petioled. Flower clusters dense; lower axillary, upper in axillary and terminal spikes. Seed shining black or brownish black.	Water extract	Amoebiasis, colic pain, scanty menstruation with pain, spermatorrhoea, painful micturition, vomiting and leucorrhoea etc.
19	<i>Kalanchoe pinnatae</i> (Crassulaceae)	Kusakathang	Leaves	It is a small herbaceous plant with long tubular pendulous flower. Leaves opposite glabrous, thick, irregular margin, deep green in colour.	Extract of the leaves.	Amoebiasis, blood dysentery, burning micturition and applied externally in acute cut injuries, bruises etc.
20	<i>Blumea lacera</i> (Compositae)	Blairu	Leaves	Herbs large, strongly aromatic. Leaves large, upto 12.5 cm. long obovate or lyrate, coarsely toothed with rather few sharp teeth. Heads in axillary and terminal paniced clusters; cypsela subtrigonous, not ribbed. Flowers - white.	Used as vegetable and decoction.	Swelling of the legs and as diuretics.
21	<i>Datura stramonium</i> (Solanaceae)	Dhotara	Leaves, flowering tops and seeds.	Bushy plant. Leaves large, ovate, sinuate or deeply toothed. Flowers large, white. solitary, pedicelled. Calyx long, tubular, 5 toothed. Corolla funnel shaped, limb plaited, entire or shortly 5 to 10 lobed. Stamens 5, adnate near the base of the corolla tube, anthers linear, included. Ovary 2 celled or 4 celled, ovules many, -style filiform, stigma 2 lobed. Fruits spinous capsule. Seeds many compressed.	Leaves are to be fried and applied, juice of flower and seed.	Skin disease such as scabis, boil, sores, asthmatic attack, Parkinsonism etc.

22	<i>Adhatoda zeylanica</i> (Acanthaceae)	Basak	Leaves	Shrubs, bushy, leaves lanceolate, acuminate, entire. Flowers white, in dense bracteate spikes, axillary or terminal; bracts conspicuous ovate obovate or elliptic, bracteoles narrower. Corolla 2 lipped, white tube dilated in the middle, pubescent outside, throat transversely striated with purple. Stamens 2 filaments hairy at the base. Ovary pubescent, 2 celled. Seeds suborbicular compressed, tuberculated.	Juice of the leaves.	Cold, cough and Bronchial asthma.
23	<i>Cuscuta reflexa</i> (Cuscutaceae)	Swarna lata	Whole plant	A parasitic herbaceous leafless parasite. Stems very long, cordlike, twining. Flowers small, sessile, in lax lateral divaricated spikes.	It is cooked with crabs, prawns or alone.	Liver enlargement and jaundice etc.
24	<i>Leucas lavendulaefolia</i> (Lamiaceae)	Dang kalasa	Flowers, Leaves.	Annuals, erect, slender, puberulous. Leaves opposite, linear lanceolate, entire or distantly serrate, acute, tapering at the base. Flowers in axillary and terminal whorls. white. Nutlets about 2 mm long, oblong rounded at the apex.	Paste of leaves and extract of flower.	Joint pain with swelling and in cough as expectorant.
25	<i>Ocimum tenuiflorum</i> (Lamiaceae)	Tulsi kasam	Leaves and seeds.	Herbs, undershrubs or shrubs, strongly, aromatic. Leaves opposite or whorled, petiolate. Flowers in whorls of 6-10, arranged in spikes, racemes or panicles, pedicels recurved.	Juice of the leaves and oil from leaves	Bronchitis, cough and cold & asthma, in complaints of urinary system and as insecticide.
26	<i>Curcuma domestica</i> (Zingiberaceae)	Sutui	Rhizomes.	Herbs rhizomatous, bearing scape from the centre of the leafy tuft, rhizome orange-yellow. Leaves upto 60 cm. long, in tufts, oblong-lanceolate, tapering to the base, petiole shorter than the blade. Spikes short with the peduncle often exerted, 5-7.5 cm only from the sheaths with one or two large barren bracts below.	Rhizome is to be pasted and then applied externally.	Acute injury, pin prick, fracture and dislocation of the bone.
27	<i>Alocasia indica</i> (Areceae)	Fenkachn	Root stock and tubers.	Herbs robust, root stock about 1-2 m, leaves large, 60-90 cm. hardly peltate, sagittately cordate, repand, end lobes triangular, acute with whitish mid-ribbed 6-8 strong, pale secondary nerves.	The root stock is to be grounded into paste and locally applied as poultice to painful parts	Gout, rheumatism and oedema.
28	<i>Allium sativum</i> (Amaryllidaceae)	Rison	Bulbs	Annuals small; bulbs compound enclosed in silky white envelope or skin. Scape upto 60 cm long, terete. exceeding leaves. Leaves several at the base.	Crushed bulb is heated then mixed with kerosin applied externally as massage.	rheumatic arthritis, paralysis and also used internally in dyspepsia.
29	<i>Vanda tessellata</i> (Orchidaceae)	Khum chuk	Leaves, roots	Epiphytes scandent. Leaves 7.5-20 × 12-28 cm conduplicate, keeled. linear-oblong, apex. lobes, rounded. Scapes axillary, stout. Flowers 3.7 to 5 cm. across. several in a raceme.	Powder of dried leaves and roots are introduced into the composition of several medicated oils	Rheumatism and disease of the nervous system.

generation may create a barrier. So the knowledge of these traditional plant medicines need to be documented, so that it can be preserved and transmitted to the next generation before they disappear. □

BIJAN DAS^{1*}
KUNTAL MANNA²
BIPLAB DE³

¹Lecturer (Selection Grade II),
Regional Institute of Pharmaceutical Science and Technology,
Abhoynagar, Agartala,
Tripura 799005, India,
e-mail: itsbijan@gmail.com

² Associate Professor,
Department of Pharmacy,
Tripura University, Suryamaninagar,
Tripura 799022, India,
e-mail: k_manna@tripurauniv.in

³ Professor, Regional Institute of Pharmaceutical Science
and Technology, Abhoynagar, Agartala,
Tripura 799005, India,
e-mail: biplab_32@yahoo.co.in

* Corresponding author

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