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An Ethnopharmacological Survey of Plants Located In Indo-Chinese Border of Ner, India

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ABSTRACT

The ethnopharmacological survey of different plants was carried out in Tuting area located in the Upper Siang district of Arunachal Pradesh. The authors investigated about the use of different plants in the treatment of ailments. 51 different plants were documented in this study along with the information regarding the use of the plants in different formulations.

Keywords: Ethnopharmacology, Tuting, Medicinal Plants, Formulations

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INTRODUCTION

Tuting is a small town in the Upper Siang district of Arunachal Pradesh and is well-known for the hydroelectric project on the Siang river. The town is a beautiful tourist destination of Arunachal Pradesh and offers the mesmerizing beauty of the hills, the Siang River, beautiful valleys and is rich in flora and fauna^{1, 2, 7}. Tuting is renowned for its festivals like the Solung, Etor&Aran of the Adis; Lossar of Memba and Khamba; and the Reh of Idu Mishmi. It is one of the most beautiful destinations of the Upper Siang district of Arunachal Pradesh. Tuting is located at 28.998106 Latitude and Longitude 94.8883736. It is worth noting that Arunachal Pradesh which is located in the north eastern Himalayas has been recognized as one of the biodiversity hot spot areas in the world^{3, 8}. Bordering to three countries viz. southern Tibetan plateau, Myanmar and Bhutan, the state represents a diverse forest types straddling from tropical to alpine. The state harbours a unique composition of different plant communities characterized by high endemism and admirable number of rare and interesting species¹⁰⁻¹³. More than 82% of the geographical area of the state is covered with forest, which is the custodian of about 26% flowering plants of India including 43% species of Orchids, 90% of Rhododendrons, about 35% Pteridophytes and 42% species of Gymnosperms^{4,5,6,8}. Interestingly many of the wild species have a great horticulture importance and can be used to develop new ornamental varieties through selective breeding. Many wild ornamental plants from the state are also playing a significant role in floriculture and have been introduced in many European and other western countries. Many species of Begonia are ornamental and quite popular in the international trade market.

The present study is mainly concentrated on the Tuting region of Arunachal Pradesh so as to document the traditional medicinal practice that is being carried out to treat or mitigate different ailments. Different traditional formulations are also documented in Table 1 involving about fifty one different medicinal plants including the indications for which these are used.

MATERIALS

Plants were collected and identified with respect to their use in traditional medicines practiced in Tuting. The identified plants are summarized in Table 2.

Table 1: Traditional formulations of medicinal plants including the indications of their use

Sr.No.	Scientific Name	Parts used/Mode of Preparation
1	<i>Artocarpusheterophyllus</i>	Root decoction 30-50ml after meal in fever; other: antidiarrhoeal, antiasthma, skin cut, skin infection.
2	<i>Averrhoacarambola</i>	Fruit infusion 100-150ml 3rice daily in fever other; jaundice, piles, scurvy ⁹ .

3.	<i>Alstoniascholaris</i> (L)	Crushed juice of stem bark 20ml in morning and evening daily in fever; other: anti-dysentery, typhoid, anti-ulcer, anti-helminthic, antiseptic.
4.	<i>Adhatodavastica</i> Nees	Leaf, bark, fruit decoction in fever, bronchitis; root & flower decoction as antiseptics.
5.	<i>Anogeisus acuminate</i> Wall	Infusion of bark is used in burns, cuts, lesions, dysentery, beri-beri, internal-bleeding, stomach ulcer.
6.	<i>Blumealanceolaria</i> Druce	Anti-cancer agent, pressed juice of leaves is applied on wounds, cuts & chronic ulcers, infusion of leaves is taken against dysentery, jaundice and tuberculosis. As anti-dandruff the head is thoroughly washed with pressed juice of leaves and then washed with water after sometimes. The crushed or even uncrushed leaves are applied on lesions.
7.	<i>Cassia fistula</i> (L)	Root & bark decoction 10-20ml 2twice a day in fever; other: as laxative, antiarthritia, skin disease.
8.	<i>Canna indica</i> (L)	Infusion of flower and fruit with hot water is used-100ml daily for fever; other: antidiabetic, joint pain, swelling.
9.	<i>Curculigo capitulate</i>	Rhizome extract used in gastritis, gonorrhoea, jaundice, piles & diarrhea
10.	<i>Centellaasiatica</i>	Plant decoction for leprosy, skin diseases & piles; whole plant + water+ boil is used for hypertension n blood purifier; plant extract applied externally for swelling of body parts.
11.	<i>Cyphomandrabetaceae</i>	Fruits taken as vegetable and are good against cold, sore throat, high BP & liver diseases; fruits are taken as cure for migraine & severe headache.
12.	<i>Costus speciosus</i> (J. Koenig) Sm	Juice of the leaves & stems are used as astringent, acrid, cooling, aphrodisiac, purgative, anthelmintic, depurative, febrifuge, expectorant and tonic and useful in burning sensation, constipation, leprosy, worm infection, skin diseases, fever, asthma, bronchitis, inflammations, anaemia, dysurea.
13.	<i>Dysoxylumgobara</i> Merr	Infusion of leaves is taken as anti-dysenteric, as anti-diarrheal, as spasmolytic.
14.	<i>Drymariacordata</i>	Boiled leaf & soft stem used as antidote, appetizer, blood purifier & fever.
15.	<i>Erythrinastricta</i> (Roxb)	Pressed juice of bark or decoction of the bark is used (30-50ml) in fever, other: dysentery, antihelminthic, diuretic, haemostatic.
16.	<i>Eupatorium adenophorum</i>	Leaf decoction for stomach ache, malaria n haemostatic; fresh leaf juice as antiseptic.
17.	<i>Elsholtziastauntonii</i> Benth	Leaf decoction used in diabetes, osteoporosis & fever.
18.	<i>Embeliassubcoriaceae</i> (Cl) Mez	Treatment of small pox & also used in post partum bathing.
19.	<i>Eupatorium odoratum</i> Linn	Pressed juice of leaves is used in cuts and burns, as haemostat and in nose-bleeding.
20.	<i>Elaeagnus caudate</i> Schlect. ht.	Leaves and roots are used as uterine stimulant.

21	<i>Gmelinaarborea</i>	Root decoction 10-20ml 2twice daily in fever; other: indigestion, appetite stimulant, sleep inducer.
22	<i>Hedyotis scandens</i> (Roxb)	Infusion of the roots, leaves and stems is used to treat fever, malaria, post partum pain and the pressed juice of leaves is taken in renal impairment, renal-calculus, dysurea and ophthalmic pain, and it is also applied in sprains.
23	<i>Jasminum undulatum</i> Lour.	Leaves are used in sore throat, in tonsillitis, anti-dysenteric, in lesions, as spasmolytic and as uterine stimulant.
24	<i>Lanatacamara</i>	Leaf decoction 30-50ml daily after meal in fever; other: skin inflammation, sprain, chest pain.
25	<i>Lablab purpureus</i> (L)	Seed decoction 40-50ml 2twice daily used in case of fever; other: skin cut, antidote, excessive bleeding during menstruation.
26	<i>Morus alba</i>	50ml fruit juice used for fever; other: asthma, indigestion.
27	<i>Musa paradisiacal</i> (L)	Gummy exuded from banana flower used in fever; other: cut, burn, dysentery.
28	<i>Mikania micrantha</i> Kunth.	The pressed leaves juice is applied on cuts and is also a good haemostat. The pressed juice of leaves is taken in diarrhea, dysentery, fever, and malaria, stomach pain and in cancer. The crushed juice of the roots have a good anti-inflammatory effect, hepatoprotective and adaptogenic.
29	<i>Oroxylum indicum</i> (L)	Root decoction is used 8-15 ml 2twice daily in fever; other uses: diarrhoeas, dysentery, skin infection.
30	<i>Ocimum basilicum</i>	Leaf & seed decoction used as anti spasmotic, carminative.
31	<i>Polygonum chinense</i> Linn.	Anti-inflammatory, anti-allergics, to treat intestinal worms and fluxes and to counterpart scorpion bites.
32	<i>Paris quadrifolia</i>	Rhizome decoction used in bronchitis, rheumatism & also aphrodisiac.
33	<i>Potentilla anserine</i>	Root decoction in diarrhea, dysentery, diabetes, toothache & anti-cancer.
34	<i>Phlogacanthus pubinervius</i>	Leaf decoction used stomach pain after child delivery.
35	<i>Punicagranatum</i>	Seed decoction with honey in diabetes & jaundice, boiled leaf extract for fever, dysentery, malaria, diarrhea & sore throat; ripe fruit juice for gastritis, fever, UTI n haemorrhages.
36	<i>Phyllanthus fraternus</i>	Leaf infusion 100-150ml daily after meal in fever; other: hepatoprotective, kidney disorder, antidiabetic.
37	<i>Piper betle</i>	Leaf decoction with turmeric juice 15-30ml 2twice daily in fever; other: cut n burn injury, indigestion, anti-asthma
38	<i>Rauwolfia tetraphylla</i>	Leaf and root used as sedative.
39	<i>Rhododendron arboretum</i>	Flower decoction used in diarrhea n dysentery.
40	<i>Rhus semialata</i>	Powdered fruit mixed with hot water for treating headache, fever, indigestion, stomachic, vomiting,

41	<i>Senecioscandens</i> Don.	allergy & food poisoning. Infusion of leaves is taken in cancer treatment and the pressed juice of leaves is applied on lesions and cuts.
42	<i>Solanumindicum</i>	Fruits taken as vegetable and are good against asthma, cough, bronchitis, constipation & dropsy. Fruits also used as expectorant.
43	<i>Swertiabimaculata</i>	Whole plant decoction used against fever, diabetes, jaundice, skin disease, leprosy, cough, bronchitis & asthma.
44	<i>Sarcococcacoriaceae</i>	Leaf decoction 30-50ml 3rice daily in feve;, other: arthritis, sprain.
45	<i>Spondiaspinnata</i> (L)	Bark decoction apply on body in fever; other: anti-dysentery, anti-ulcer, scurvy.
46	<i>Stereosrermumpersonatum</i>	Leaf & flower decoction 20-30ml 2twice daily in fever; other: anti-ulcer, snake bite.
47	<i>Saxifragraligulata</i>	Crushed juice of leaf or whole part 20-30ml 2twice daily in fever; other: anti-diarrhoea, stomach ache.
48	<i>Solanumxanthocarpum</i> (L),	Root decoction is used 15-30ml after meal in fever; other use: arthritis, toothache.
49	<i>Thalicummainus</i>	Root decoction taken in fever.
50	<i>Vitependuncularis</i>	Bark & leaf decoction 125ml after meal in fever; other: typhoid, dysuria, anti-ulcer.
51	<i>Wrightiatomentosa</i> (Roem& Schultz)	Crushed fruit juice is mixed with water and filtered, filterate 15-20ml twice daily used in fever; other: renal disorder, snake bite, haemostatic.

Table 2: List of medicinal plants identified for documentation

Sr.No.	Scientific Name	Family	English/local Name	Name/Hindi
1	<i>Artocarpusheterophyllus</i>	Moraceae		
2	<i>Averrhoacarambola</i>	Oxalidaceae	Star apple	
3.	<i>Alstoniascholaris</i> (L)	Apocynaceae	Devils tree, dita bark tree	
4.	<i>Adhatodavasica</i> Nees	Acanthaceae		
5.	<i>Anogeisus acuminata</i> Wall	Combretaceae	Button tree	
6.	<i>Blumealanceolaria</i> Druce	Composite	Buarze	
7.	<i>Cassia fistula</i> (L)	Fabaceae	Golden shower/ laburnum	Indian
8.	<i>Canna indica</i> (L)	Stamineae (Cannaceae)	Canna/Indian Shot	
9.	<i>Curculigo capitulate</i>	Hypoxidaceae	Palm grass	
10.	<i>Centellaasiatica</i>	Umbellifera	India pennywort	
11.	<i>Cyphomandrabetaceae</i>	Solanaceae	Tree tomato	
12.	<i>Costus specious</i> (J. Koenig) Sm	Zingiberaceae	Crepe Ginger	
13	<i>Dysoxylumgobara</i> Merr	Meliaceae	Thingthupui	
14.	<i>Drymariaacordata</i>	Caryophyllaceae	Chick weed	
15.	<i>Erythrinastricta</i> (Roxb)	Fabaceae	Coral tree	
16.	<i>Eupatorium adenophorum</i>	Asteraceae	Crofton weed	
17.	<i>Elsholtziastauntonii</i> Benth	Lamiaceae	Mint shrub	

18.	<i>Embliasubcoriaceae</i> (Cl) Mez	Elaegnaceae	Tling
19.	<i>Eupatorium odoratum</i> Linn	Compositae	Bitter bush, Christmas bush, Siam weed
20.	<i>Elaeagnus caudate</i> Schlecht.	Elaeagnaceae	Ghiwain
21.	<i>Gmelinaarborea</i>	Verbenaceae	Beechwood/Gmelia
22.	<i>Hedyotisscandens</i> (Roxb)	Rubiaceae	Indian madder
23.	<i>Jasminumundulatum</i> Lour.	oleaceae	Arabian Jasmine
24.	<i>Lanatacamara</i>	Verbenaceae	Lantana
25.	<i>Lablab purpureus</i> (L)	Leguminoceae	Country bean
26.	<i>Morus alba</i>	Moraceae	Mulberry
27.	<i>Musa paradisiacal</i> (L)	Musaceae	Plantain
28.	<i>Mikaniamicranthakunth.</i>	Asteraceae; Compositae.	Climbing Hempweed, Guago
29.	<i>Oroxylumindicum</i> (L)	Bignoniaceae	Trumpet flower
30.	<i>Ocimumbasilicum</i>	Lamiaceae	Sweet basil
31.	<i>Polygonumchinense</i> Linn.	Polygonaceae.	Mountain knotweed, Chinese knotweed.
32.	<i>Paris quadrifolia</i>	Trilliaceae	True-lover knot (Burma ginseng)
33.	<i>Potentilla anserine</i>	Rosaceae	Silverweed
34.	<i>Phlogacanthuspubinervius</i>	Acanthaceae	Red nongmangkha
35.	<i>Punicagranatum</i>	Punicaceae	Pomegranate (Dalim)
36.	<i>Phyllanthusfraternus</i>	Euphorbiaceae	Phyllanthus
37.	<i>Piper betle</i>	Piperaceae	Betel leaf (Paan)
38.	<i>Rauwolfiatetraphylla</i>	Apocynaceae	Bestill tree
39.	<i>Rhododendron arboretum</i>	Ericaceae	Rhododendron
40.	<i>Rhussemialata</i>	Anacardiaceae	Nutgall
41.	<i>Senecioscandens</i> Don.	Compositae.	groundsel, Ragwort
42.	<i>Solanumindicum</i>	Solanaceae	Indian nightshade
43.	<i>Swertiabimaculata</i>	Gentianaceae	Bitter stick
44.	<i>Sarcococcacoriaceae</i>	Euphorbiaceae/Bixaceae	
45.	<i>Spondiaspinnata</i> (L)	Anacardiaceae	Hog-palm tree
46.	<i>Stereosrermumpersonatum</i>	Bignoniaceae	Yellow snake tree
47.	<i>Saxifragraligulata</i>	Saxifragaceae	Saxifrage
48.	<i>Solanumxanthocarpum</i> (L),	Solanaceae	Yellow-berried nightshade
49.	<i>Thalicummainus</i>	Ranunculaceae	Small meadow rue
50.	<i>Vitexpenduncularis</i>	Verbenaceae	
51.	<i>Wrightiatomentosa</i> (Roem& Schultz)	Apocynaceae	Ivory tree

CONCLUSION

Traditional medicinal practices are an indispensable part in the evolution of modern medicinal agents. This study highlighted the medicinal practices that are still being followed in the remote areas of Tuting region of Arunachal Pradesh.

Majority of the formulations that are documented in this survey was indicated for fever and associated diseases. One of the noteworthy aspects that is to be highlighted is that in most of the remote pockets of the Upper Siang region of Arunachal Pradesh there is wide spread prevalence of malaria and hence traditional healers are prescribing various formulations for the treatment of fever, a common symptom of malaria.

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