Traditional use of medicinal plants found within Aizawl city in Mizoram, India

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Abstract

Aizawl, the capital of Mizoram is rapidly developing city with the residents depending mostly on pharmaceutical medicines. However, the use of ethnomedicinal plants is still prevalent as a source of medicine. The paper deals with ethnomedicinal plants which are used for treating various diseases within this city.

Key words: Traditional medicine, ethnomedicinal plants, Aizawl, Mizoram

INTRODUCTION

Geographically, Mizoram lies in the extreme end of the extended Himalayan ranges in the North-eastern part of India covering 21,081 sq km of land area. The Tropic of Cancer divides the state into almost two equal parts. The climate is pleasant throughout the year with the temperature ranging from 10 – 30 °C. Winter lasts from December to February, spring from March to May, summer from June to August and autumn from September to November.

Aizawl, the state capital of Mizoram is located between 90°30' – 90°60' E longitudes and 21°58' N and 28°85' N latitudes. The area stretches from Sihphir in the North and South Hlimen in the South, Zemabawk in the east and Tanhril and Sakawrtuichhun in the West covering an area of 128.98 sq km and situated at an altitude ranging from 800 – 1188 m a.m.s.l. The total population in the latest census was 1,091,014 persons (GOI 2011)

The ethnomedicinal plants of Mizoram have been reported by workers like Darlantage Thangpa (1989) who reported medicinal plants used for the treatment of 97 diseases; Saptawna (1990) who reported 58 species of medicinal plants; Lalnianthanga (1990) reported 128 plant species used in local medicine, Vailinga (1991) documented 165 diseases and their ethnomedicines and Chawngkunga (1996) documented 85 ethnomedicinal plants. Some other notable contributions were made by Lalramnghinglova and Jha (1997) and Lalnundanga et al. (1997). Lalramnghinglova (2003) documented 126 ethnomedicinal plants in his book Ethno-medicinal plants of Mizoram and Rozika (2003) documented 204 plants along with their uses. Although we have various workers reporting the ethnomedicinal plant found in the state of Mizoram, no study have been carried out city wise. This study aims at documenting the ethno medicinal plants which are found within Aizawl city and to record their uses.
METHODOLOGY

The approach used involves direct observation about the ways in which the owners of various home gardens use the plants they grow as medicines for treating and curing their various ailments and diseases. It also consists of basic documentation of traditional botanical knowledge of the local people through interaction with them. Some local knowledgeable persons were interviewed to collect their knowledge on herbal medicine. Home gardens within the study area were visited. Specimens were collected and processed into mounted herbarium sheets and were identified using different literatures including Hooker (1872 – 1897), Kanjilal et al. (1934 – 1940), Singh et al. (2002), Lalramchhunglova (2003), Sawmliana (2003), Prajapati et al. (2004) and Ambasta (1986). Voucher specimen were deposited into the Herbarium of the Department of Environmental Science, Mizoram University.

RESULTS

The ethnomedicinal plants are arranged below alphabetically along with their botanical name, family, local name, parts used, preparation and administration.

*Aeschynanthus parviflorus* (D.Don) Sprengel [Syn: *Aeschynanthus sikkimensis* (C.B. Clarke) Stapf] [Gesneriaceae]. **Local Name**: Bawltehlantai. **Habit**: Epiphytic undershrub. **Parts used**: roots, leaves and flowers. **Preparation & administration**: Root decoction taken for fever; crushed leaf juice applied and drunk for inflammatory glands; infusion of leaves taken against tonsillitis. [STZ 00087]

*Andrographis paniculata* (Burman f.) Nees [Acanthaceae]. **Local Name**: Hlochangvawm. **Habit**: Erect much branched annual herb. **Parts used**: Whole plant. **Preparation & administration**: Infusion of whole plant used in fever; entire plant used in dysentery and dyspepsia; also used in spleen complaints, colic and strangulation of intestine, constipation, diarrhea, cholera and bites of rabid jackal. [HLR 1423].

*Artemisia indica* Willdenow [Asteraceae]. **Local Name**: Sai. **Habit**: Aromatic undershrub with ribbed stem. **Parts used**: Roots and leaves. **Preparation & administration**: Root and leaf decoction useful in fever, stomachache, asthma, etc.; leaf juice good to stop bleeding. [HLR 1462].

*Aporosa octandra* (Buchanan-Hamilton ex D.Don) Vickery [Phyllanthaceae]. **Local Name**: Chhawntual. **Habit**: 6 – 10 m tall evergreen tree. **Parts used**: Bark. **Preparation & administration**: Bark decoction taken against colic pain and stomachache. [HLR 1438].

*Asparagus racemosus* Willdenow [Asparagaceae]. **Local Name**: Arkebawk. **Habit**: Perennial prickly climber with numerous tuberous roots. **Parts used**: Roots and cladodes. **Preparation & administration**: Roots used in fever, rheumatism and as sexual tonic; root decoction given in fever; root extract antifungal; boiled cladodes used in boils and smallpox. [STZ 00073].

*Aquilaria malaccensis* Lamarck [Thymelaeaceae]. **Local Name**: Thingrai. **Habit**: Tall evergreen tree; flowers white. **Parts used**: Bark **Preparation & administration**: Bark decoction used in asthma, abdominal pain and chronic diarrhea. [HLR 1430].

*Blumea lanceolaria* (Roxburgh) Druce [Asteraceae]. **Local Name**: Buarze. **Habit**: Erect aromatic shrub with basal rosette of leaves. **Parts used**: Leaves. **Preparation & administration**: Pressed leaf juice applied on wounds and chronic ulcer; leaf infusion taken against diarrhea, bronchitis, asthma, cancer and liver ailments. [HLR 1424].
**Brugmansia suaveolens** (Humboldt & Bonpland ex Willdenow) Berchtold & J.Presl [Solanaceae]. **Local Name:** Tawtawrawt par. **Habit:** Tall shrub; flowers large white pendulous, corolla trumpet shaped. **Parts used:** Leaves. **Preparation & administration:** Dried leaves smoked as tobacco for chest complaints and asthma; roasted leaf applied on breast for lump or stony hard breast. [STZ 00088].

**Canavalia ensiformis** (Linnaeus) DC. [Leguminosae: Papilionoidae]. **Local Name:** Fangra. **Habit:** Stout perennial climber. **Parts used:** Seeds. **Preparation & administration:** Sliced seeds applied to snake bite to suck out the poison. [STZ 00074].

**Catharanthus roseus** (Linnaeus) G.Don [Apocynaceae]. **Local Name:** Kumtluang. **Habit:** Erect herb with pink or white flowers. **Parts used:** Leaves, roots and stem. **Preparation & administration:** Root stem and leaf decoction useful in diabetes, diarrhea, dysentery and cholera; leaves are eaten raw against high blood pressure; root use in toothache. [HLR 1435].

**Centella asiatica** (Linnaeus) Urban [Apiaceae] **Local Name:** Lambak. **Habit:** A perennial trailing or creeping herb. **Parts used:** Leaves. **Preparation and administration:** 5-7 leaves chewed and swallowed for 7 days for hypertension, heartburn. Leaf juice applied on itches, cuts and wounds and dropped into the eye for eyesore. [STZ 00085].

**Cinnamomum tamala** (Buchanan-Hamilton) T.Nees & Ebermaier [Lauraceae] **Local Name:** Tespata, Hnahrimtui. **Habit:** A medium sized evergreen tree. **Parts used:** Stem bark and root bark. **Preparation and administration:** Grinded bark mixed with water for diabetes. [HLR 1436].

**Cheilocostus speciosus** (J.Koenig) C.D.Specht [Syn: Costus speciocus (J.Koenig) J.E. Smith [Costaceae] **Local Name:** Sumbul. **Habit:** A perennial herb with large white flowers. **Parts used:** Rhizome. **Preparation and administration:** Decoction of rhizome taken for kidney trouble, dysuria and urinary problem. [HLR 1439].

**Cinnamomum verum** J.Presl [Lauraceae] **Local Name:** Thakthing. **Habit:** A moderate size evergreen tree. **Parts used:** Root bark, stem bark, leaves. **Preparation and administration:** Grounded Root bark and stem bark mixed with water for colic, flatulence and hiccup. Infusion of leaves taken against cough. Root bark eaten raw for nausea and vomiting. [STZ 00093].

**Cissus javana** DC. [Syn: Cissus discolor] Blume [Vitaceae] **Local Name:** Sangharhmai. **Habit:** A glabrous climber with yellow flowers. **Parts used:** Leaves, roots and stem. **Preparation and administration:** Leaves chewed for teeth set on edge through eating acidic fruit, paste of roots mixed with salt and used as poultice for tumors, decoction of roots, stems and leaves used for inflamed kidneys. [HLR 1437].

**Clerodendrum glandulosum** Lindley [Syn: Clerodendrum colebrookianum] Walpers] [Lamiaceae] **Local Name:** Phuihnam. **Habit:** A large shrub or small tree. **Parts used:** Leaves, roots. **Preparation and administration:** Leaf infusion used for hypertension and to decrease breast milk. Root paste used to treat uteritis. [HLR 1438].

**Curcuma caesia** Roxburgh [Zingiberaceae] **Local Name:** Ailaidum. **Habit:** A perennial herb. **Parts used:** Rhizome. **Preparation and administration:** Juice of dark part of rhizome used for diarrhea, stomach pain, food allergy and food poisoning. [HLR 1439].

**Curcuma longa** Linnaeus [Zingiberaceae] **Local Name:** Aieng. **Habit:** A perennial herb. **Parts used:** Rhizome. **Preparation and administration:** Fresh rhizome crushed and applied externally on sprains, wounds and swelling. Decoction of rhizome used for stomach ulcer. [STZ 00084]
Cynodon dactylon (Linnaeus) Persoon [Gramineae] Local Name: Phaitualhnim. Habit: A slender, prostrate, perennial grass. Parts used: Whole plant. Preparation and administration: Leaf juice is used in toothache [STZ 00096].

Drymaria cordata (Linnaeus) Willdenow ex Schultes [Caryophyllaceae] Local Name: Changkalrit. Habit: A spreading annual herb. Parts used: Whole plant. Preparation and administration: Whole plant boiled, steam inhaled for sinus or cold. Leaf juice used as lotion for joint pain and muscle strain. [HLR 1440].


Elaeagnus caudata Schlechtendal ex Momiyama [Elaeagnaceae] Local Name: Sarzuk. Habit: Large evergreen straggling or scandent shrub. Parts used: Roots. Preparation and administration: Decoction of roots used for expelling some pieces of retained placenta after child birth and for stopping the menses. [STZ 00099].

Phyllanthus emblica Linnaeus [Syn: Emblica officinalis] J.Gaertner [Phyllanthaceae] Local Name: Sunhlu Habit: A small deciduous tree. Parts used: Bark, fruit. Preparation and administration: Juice of crushed bark used in dysentery and diarrhea. Fruit decoction used to expel retained placenta after childbirth and cure skin eruptions due to food allergy. [HLR 1446].

Eucalyptus globulus Labillardière [Myrtaceae] Local Name: Eucalyptus. Habit: A large tall straight boled evergreen tree. Parts used: Leaves, charcoal. Preparation and administration: Infusion of leaves is taken against pneumonia. Charcoal grinded to powder or made into paste and eaten for stomach ulcer. Decoction of leaves used for diabetes. [STZ 00090].

Euphorbia royleana Boissier [Euphorbiaceae] Local Name: Chawng. Habit: A large milky shrub. Parts used: Pith, milky juice and leaves. Preparation and administration: Pith and unripe fruit of papaya cooked with chicken and the water used for diseases of the liver and chronic fever. Milky juice applied to ringworm, rheumatism, boils, and warts. Leaves heated over fire and juice applied to earache. [HLR 1447].

Garcinia cowa Roxburgh ex Choisy [Clusiaceae] Local Name: Chengkek. Habit: Evergreen glabrous shrub. Parts used: Leaves, latex juice, fruit. Preparation and administration: Infusion of leaves used for diarrhea and dysentery. Latex juice applied on pig mange and sore. Juice of leaves dropped into the ear for sore. Fruit decoction used for dysentery. [STZ 00092].

Hedyotis scandens Roxburgh [Rubiaceae] Local Name: Laikingtuibur. Habit: A slender soft-wooded climber with greenish white flowers. Parts used: Roots, leaves. Preparation and administration: Infusion of leaves and roots used for fever, urinary complaints, inflamed kidneys and womb troubles. Juice of the crushed leaves is applied to sores, rheumatism and eye diseases. [HLR 1448].

**Lantana camara** Linnaeus [Verbenaceae] **Local Name:** Hlingpangpar. **Habit:** A straggling aromatic shrub. **Parts used:** Stem, leaves, twigs. **Preparation and administration:** Decoction of stem and leaves used for diabetes. Fresh twig used to temporarily preserve corpse. [STZ 00104].

**Lepionurus sylvestris** Blume [Opiliaceae] **Local Name:** Anpangthuam. **Habit:** A small tree upto 2m high. **Parts used:** Leaves. **Preparation and administration:** Juice of leaves is applied on skin eruptions. Whole plant taken to strengthen uterus. [STZ 00093].

**Lindernia ruellioides** (Colsmann) Pennell [Linderniaceae] **Local Name:** Thasuih. **Habit:** A trailing herb with purple flowers. **Parts used:** Whole plant. **Preparation and administration:** Whole plant crushed and applied externally for worms in the skin, used as poultice for cramps, rheumatism, sciatica, wounds and applied internally for eye problems. [HLR 1450].

**Mallotus philippensis** (Lamarck) Müller Argoviensis [Euphorbiaceae] **Local Name:** Barikhei. **Habit:** A small to middle sized evergreen tree. **Parts used:** Bark. **Preparation and administration:** Bark decoction used for chronic dysentery, diarrhea. [STZ 00102].

**Mallotus roxburghianus** Müller-Argoviensis [Euphorbiaceae] **Local Name:** Zawngtenawhlung. **Habit:** A shrub to small tree. **Parts used:** Twigs and leaves. **Preparation and administration:** Decoction of leaves taken for diabetes. Twig and 4-7 leaves are boiled with chicken and rice and the water taken against hepatitis and fever. [HLR 1451].

**Melia azedarach** Linnaeus [Meliaceae] **Local Name:** Neem suak. **Habit:** A middle sized deciduous tree. **Parts used:** Leaves. **Preparation and administration:** Decoction of leaves taken against fever. Juice of leaves applied on bites of insects like spiders and bees [STZ 00094].

**Mesua ferrea** Linnaeus [Clusiaceae] **Local Name:** Herhse. **Habit:** A middle sized or large handsome evergreen tree. **Parts used:** Fruit, flower. **Preparation and administration:** Crushed fruit used for scabies and applied to wounds. Flower used to stop bleeding. [HLR 1453].

**Mikania micrantha** Kunth [Asteraceae] **Local Name:** Japan-hlo. **Habit:** Obnoxious quick growing annual climber. **Parts used:** Leaves. **Preparation and administration:** Juice of leaves used in fever, stomachache, diarrhea, dysentery, fresh cuts. Bruised leaf used as anti-dandruff. [STZ 00104].

**Musa sylvestris** Colla [Syn:Musa seminifera] Linnaeus [Musaceae] **Local Name:** Changel. **Habit:** A tall robust herb. **Parts used:** Sap juice. **Preparation and administration:** Sap juice mixed with chicken blood used to treat epilepsy and snake bite. [HLR 1456].

**Oroxylum indicum** (Linnaeus) Kurz [Bignoniaceae] **Local Name:** Archangkawm. **Habit:** A small deciduous tree. **Parts used:** Stem bark and root bark. **Preparation and administration:** Decoction of stem bark or root bark used in ulcer, cancer, jaundice and rheumatism. [STZ 00106].

**Osbeckia stellata** Buchanan-Hamilton ex Ker Gawler [Syn: Osbeckia sikkimensis W.G. Craib] [Melastomataceae] **Local Name:** Builukhampa. **Habit:** A much branched shrub
with long spreading hairs. **Parts used:** Roots, leaves. **Preparation and administration:** The decoction of roots used for urinary and kidney problems. Decoction of leaves used for toothache. [STZ 00107].

*Paederia foetida* Linnaeus [Rubiaceae] **Local Name:** Vawihuihrui. **Habit:** A slender wiry climber. **Parts used:** Whole plant. **Preparation and administration:** Leaf juice used for diarrhea and dysentery. Stem and leaves chewed for toothache, used for skin disease. Whole plant used for rheumatism. [STZ 00108].

*Phyllanthus fraternus* G.L.Webster [Phyllanthaceae] **Local Name:** Mitthi sunhlu. **Habit:** An annual slender herb. **Parts used:** Whole plant. **Preparation and administration:** Juice of whole plant used for liver problems and jaundice, stem and leaves eaten raw for diabetes and sore throat. Whole plant useful in bronchitis, leprosy, anemia, urinary discharges, biliousness, asthma, and hiccup [STZ 00108].

*Piper betle* Linnaeus [Piperaceae] **Local Name:** Panruang. **Habit:** A perennial climber. **Parts used:** Leaf, stem. **Preparation and administration:** Stem is eaten as contraceptive, leaf improves appetite, strengthens teeth, lessens thirst, clears throat and is tonic to the brain, heart and liver; juice of leaves is dropped into the eye in night blindness. [STZ 00109].

*Lobelia nummularia* Lamarck [Syn: *Pratia begonifolia* (Wallich) Lindley] [Campanulaceae] **Local Name:** Choaka thi. **Habit:** A creeping herb with mauve-coloured berries. **Parts used:** Whole plant. **Preparation and administration:** Whole plant is crushed, juice applied to cure bee sting, toothache and taken against diarrhea, stomach ulcer and tonsillitis. [STZ 00110].

*Ricinus communis* Linnaeus [Euphorbiaceae] **Local Name:** Mutih. **Habit:** A soft-wooded evergreen shrub or small tree. **Parts used:** Leaves. **Preparation and administration:** Leaves heated over fire used as poultice for ulcers and boils and also applied for sciatica and paralysis. Crushed leaves applied on the waist as bandage for urinary problem. [STZ 00102].

*Saraca indica* Linnaeus [Leguminosae: Caesalpinioidae] **Local Name:** Mualhawih. **Habit:** A small or middle sized handsome evergreen tree. **Parts used:** Bark. **Preparation and administration:** Dried bark boiled with water singly or with *Vitex penduncularis* and water taken for urinary problem, stomachache and piles. [HLR 1458].

*Scoparia dulcis* Linnaeus [Plantaginaceae] **Local Name:** Perhpawngchaw. **Habit:** Erect undershrub about 60 cm tall. **Parts used:** Leaves, stem and roots. **Preparation and administration:** Juice of pounded leaves, stem and roots used in diabetes, stomach troubles, nausea, diarrhea, dysentery and kidney-stone. Juice of leaves applied to snake-bite, sores, burns and cuts. [HLR 1460].

*Senecio scandens* Buchanan-Hamilton ex D.Don [Asteraceae] **Local Name:** Saiekhlo. **Habit:** A perennial climber with bright yellow flowers. **Parts used:** Leaves. **Preparation and administration:** Decoction of leaves used in stomachache, cancer and in diabetes. Juice of leaves applied to chronic ulcer. [HLR 1461].

*Senna alata* (Linnaeus) Roxburgh [Syn: *Cassia alata* Linnaeus] [Leguminosae: Caesalpinioideae]. **Local Name:** Tuitur, Tuilih, Kelbepui, Dadu hlo. **Habit:** 2 – 3.6 m high soft wooded shrub; flowers bright yellow. **Parts used:** Leaves. **Preparation & administration:** Juice of crushed leaves applied on ringworm, gonorrhea, scabies, snake-bite, eczema. [HLR 1433].

*Sida acuta* Burman f. [Malvaceae] **Local Name:** Khingkhih. **Habit:** An erect, much branched undershrub. **Parts used:** Roots. **Preparation and administration:** Crushed root
applied on boils to suck out pus. Used in nerve and urinary diseases, fever and stomach ailments. [HLR 1462].

*Solanum americanum* P. Miller [Syn: *Solanum nigrum* Linnaeus] [Solanaceae] Local Name: Anhling. Habit: An annual glabrous herb. Parts used: Leaves, juice of berry. Preparation and administration: Leaf infusion used for urinary problems and kidney stone. Juice of berry applied to boils, ringworms, as nosedrop of humans and animals to dislodge water-lease. [STZ 00111].


*Terminalia chebula* Retzius [Combretaceae] Local Name: Reraw. Habit: A moderate deciduous tree. Parts used: Fruit. Preparation and administration: Crushed fruit mixed with water, left overnight to ferment, strained through tea strainer or clean cloth and used for eye sores, as gargle, in stomatitis, chronic wounds and ulcer, cirrhosis of liver. [STZ 00112].

*Thunbergia grandiflora* (Roxburgh ex Rottler) Roxburgh [Acanthaceae] Local Name: Zawngafian. Habit: A large climber with light blue flowers. Parts used: Leaves. Preparation and administration: Juice of leaf used for diabetes, eye diseases, antiseptic in cuts and wounds. [HLR 1465].

*Urena lobata* Linnaeus [Malvaceae] Local Name: Sehnap. Habit: An under-shrub upto 1m high. Parts used: Roots and leaves. Preparation and administration: Crushed roots mixed with water used as aphrodisiac. Leaf juice applied on the body against rheumatism. [STZ 00113].

*Woodfordia fruticosa* (Linnaeus) Kurz [Lythraceae] Local Name: Ainawn. Habit: A large spreading shrub with bright brick red flowers. Parts used: Leaves and flowers. Preparation and administration: Leaves or flower or dried flower part soaked in water and eaten for stomachache. Also eaten raw for stomach problems. [HLR 1466].

**DISCUSSION**

This study has documented 56 species of medicinal plants belonging to 54 genera and 35 families which are used traditionally within the city of Aizawl. Out of these, 3 species are introduced (*Eucalyptus globules*, *Lantana camara* and *Melia azedarach*) while the rest are native plants. Different parts of the plants were used for preparation of medicine and among them, leaves were most frequently used (32 spp.) followed by roots (13 spp.), bark (10 spp.), whole plant (7 spp.). Other parts used included stem, fruit, flower, rhizome, sap, seed, pith, cladodes, twigs and wood-charcoal. Most of the plants are used singly to prepare the medicines except for *Euphorbia royleana* (cooked with papaya, chicken and water), *Mallotus roxburghianus* (cooked with chicken and rice), *Musa sylvestris* (sap mixed with chicken blood) and *Saraca indica* (boiled with *Vitex pendencularis*). The mode of preparation varies in different species and the most frequently used modes are decoction and infusion of various plant parts followed by juice of leaves, stem, roots, barks or whole plants. Other modes are paste, powder, raw, steaming. The mode of application may be external or internal.

A single species may be used to treat more than one kind of disease and the mode of preparation for the treatment of each disease as well as the plant part used may be different.
For example, the root decoction of *Osbeckia stellata* is used for urinary and kidney problems while decoction of its leaves are used in toothache. In the case of *Jasminum nervosum*, leaves are eaten raw for stomachache while leaf infusion is used for sore-throat, toothache and inflammatory glands.

We find a renewed interest in traditional medicine today. There has been an ever increasing demand for more and more drugs from plant sources during the past decade and this revival of interest is mainly due to the widespread belief that green medicine is safe and more dependable than the costly synthetic drugs many of which have adverse side effects. Among these medicinal plants, some of the preparations most widely used within the city are the charcoal obtained from *Eucalyptus globulus* which is grinded into powder and the decoction of rhizome of *Curcuma longa*. Both are used to treat stomach ulcer and are sold in the local market. *Catharanthus roseus* is grown in most households for use in treatment of blood pressure. Some of the species such as *Asparagus racemosus*, *Canavalia ensiformis*, *Clerodendrum glandulosum*, *Centella asiatica*, *Dysoxylum excelsum* and *Lepionurus sylvestris* are also available in the local market as vegetables.

**CONCLUSION**

The study have indicated that the study area is rich in medicinal plant which are used by the local people to treat a wide range of diseases. Many people residing within Aizawl city still use and depend on medicinal plants for primary health care. Besides this, it was found that some people prefer natural drugs to synthetic or allopathic drugs as the last resort when modern medicines fail to cure diseases. Rapid urbanization has led to a loss of traditional knowledge and as such, ethnomedicinal knowledge needs to be conserved. A widespread cultivation of these ethnomedicinal plants have to be promoted for the benefit of the community as a whole.

**LITERATURE CITED**


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