Folk herbal remedies from Meghalaya

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Traditional methods of treatment using plants and animals are predominant in rural societies of Meghalaya, a north-eastern state of India. As a result of an ethnobotanical survey conducted during 1999-2002, information on 46 such plant species belonging to 44 genera and 34 families are presented.

Keywords: Folk herbal remedies, Traditional medicine, Meghalaya, Ethnomedicine.

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The native population of Meghalaya is comprised of three major tribes, viz. Khasi, Jaintia and Garo. People from other parts of India are confined in the capital and adjoining areas. All these tribes of Meghalaya use traditional methods of treatment based on herbal drugs¹-⁴. These medicines are well accepted by the local people since generation with a notable degree of efficacy in alleviating different diseases. These herbal drugs are taken either in raw form or as aqueous extracts.

The present study has been carried out to document the medicines used by the tribes of this state. Altogether 46 plant species belonging to 44 genera and 34 families have been reported here.

The information reported here regarding the curative values, would provide ample opportunities for further scientific investigation of these plant species.

Meghalaya, a state situated in the north-east, is extended between latitude 25° 1′–26° 5′N and longitude 85° 45′–92° 52′E⁵-⁶(Fig.1). The total population of the state as per 1991 census is 1,774,778. The altitude ranges from 500 to 2089 m. The temperature ranges from minimum 2°C during winter to maximum 26°C during summer. Meghalaya is under direct influence of monsoon. Cherrapunji - Mawsynram belts have received record rainfall in many years, being about 7500 mm per year. In 1974, a record rainfall of 25,000 mm was recorded in Cherrapunji. The state has been divided into six districts. The study has been carried out in the East Khasi part of the Ri-Bhoi district and the Jaintia Hill district. The major tribes of the study area are Khasi, Jaintia and...
Garo. Every tribe has its own language and religion. Most of the people of new generation are Christian and use English language for communication. They are mainly rice eaters.

Methodology
The survey was conducted during March 1999 to February 2002. Folklore data were collected from local healers and also from users. The scientific names were assigned with the help of Botanical Survey of India, Eastern Circle, Shillong, Meghalaya.

Results
In the following enumeration, the plants are arranged in alphabetical order of their scientific names along with family (in parentheses), followed by Khasi (K) and English (E) names wherever available and brief notes on plant parts, modes of use, dose (quantities given in parentheses are always intended as approximate). More than one species used for the same purpose or having the same local name has been designated as spp.

*Aegle marmelos* Correa ex Roxb. (Rutaceae); Diengsohbel (K); Wood apple (E). The pounded fresh leaves (3-4) mixed with crushed chili are applied topically in the treatment of abscess. The juice of the fresh leaves (8-10) is taken orally (once daily) in the treatment of heart diseases. Leaf juice (20-30 ml) mixed with the leaf juice of *Ocimum basilicum* is taken orally (2 times daily) in the treatment of fever.

*Benincasa hispida* (Thunb.) Cogn. (Cucurbitaceae); Pathawiong (K); White pumpkin (E). Leaf juice (5ml) is taken orally to treat cough. The leaf juice (5ml) mixed with little salt is taken orally (2-3 times daily) in the treatment of fever.

*Berberis microcarpa* (Hook. & Thoms.) Ahrendt (Berberidaceae); Djeengsong (K). The juice of root bark and stem bark (equal proportion) is applied topically in skin diseases. The filtered juice is used as
eye drop in eye infections. Decoction of root bark (15-20 ml) is taken orally (2-3 times daily) in the treatment of fever. Powdered root is soaked in home made liquor for 7 days. The mixture is taken orally (5 ml) as laxative.

Boerhaavia diffusa Linn. (Nyctaginaceae); Dieng punar (K); Spreading hogweed (E). Leaves are taken as curry in the treatment of hypotension. Root juice (15 ml) mixed with crushed chili (2 Nos) is taken orally (2-3 times daily) to treat bronchial asthma. Leaf juice (15 ml) is taken orally (2 times daily) in the treatment of jaundice.

Cissus quadrangularis Linn. (Vitaceae); Kynbat–harjora (K). Plant is ground to make paste and the paste is applied topically in fracture or dislocation of bones. Plant juice is used as ear drop in otorrhea. Powdered plant mixed with mustard oil is used as massage in rheumatoid arthritis.

Clitoria ternatea Linn. (Papilionaceae); U-misyntiew (K); Clitoria (E). Root powder (1 teaspoonful) is taken orally (3 times daily) with water (5 ml) in the treatment of ascariasis and fever. Root powder (1 teaspoonful) mixed with 'ghee' is taken orally immediately after snake bite. The powder can also be taken with milk or with the juice of turmeric for the same purpose.

Enhydra fluctuans Lour. (Asteraceae); Kynbat hingcha (K). Leaf juice is used externally in prickly heat and skin diseases. The juice is taken orally (10 ml, 2 times daily) in the treatment of liver diseases. Concentrated leaf juice is used as laxative.

Eupatorium cannabinum Linn. (Asteraceae); Kynbat nongrim (K); Hemp agrimony (E). Leaves and young shoots are ground and applied in cuts and wounds and also used in the treatment of burn. The juice obtained after grinding leaves and young shoots is used in the treatment of dysentery.

Ficus benghalensis Linn. (Moraceae); Diengiri (K); Banyan tree (E). Powdered leaves (1 gm) mixed with curd (5 ml) are used as antidiarrhoeal. Bark powder (50 gm) is mixed with equal amount of the bark powder of Ficus religiosa L. and water to make a paste. The paste is applied (once daily) over the affected parts in case of fracture or dislocation of bones. The milky exudate is applied externally in rheumatoid arthritis.

Garcinia cowa Roxb. (Clusiaceae); Sookwang (K). Raw or sun dried sliced fruit is used to treat dysentery.

Gaultheria fragrantissima Wall. (Ericaceae); Soh-lynthrait (K); Indian wintergreen (E). Decoction of the leaves mixed with mustard oil is used externally in rheumatoid arthritis and internally (15 ml daily) in amenorrhea and oligomenorrhoea. Powdered leaves (150 gm) mixed with water (50 ml) are taken orally (15 ml, twice daily) to treat chronic diarrhoea.

Gmelina arborea Roxb. (Verbenaceae); Dieng laphiang (K). Root juice is taken orally (15 ml, thrice daily) in the treatment of fever. Leaf juice is used orally (10 ml, thrice daily) in the treatment of cough.

Hyplianthera stricta W. & A. (Rubiacaeae); Dieng diki (K). Infusion of leaves is given orally (5-10 ml, daily) to ease labour.
**Jatropha curcas** Linn. (Euphorbiaceae); Dieng songdkhar (K); Angular leaved physic nut (E). Leaf juice is used in the treatment of amenorrhoea and oligomenorrhoea. Stem juice (15 ml) of the plant (10-15 years old) mixed with water (5 ml) is taken orally (10-15ml, 3 times daily) in the treatment of dysentery. Seed oil is applied locally in haemorrhoids. Leaf juice and bark juice, are used externally in skin diseases.

**Justicia gendarussa** Burm. f. (Acanthaceae); Dieng nili (K). Leaf juice is used as antiseptic and haemostatic. It is applied externally in cuts and wounds, as nasal drop in nasal bleeding and as gargle in aphthae. This is also used (10 ml, 3 times daily) in dysentery when blood appears in stool.

**Leea crispa** Linn. (Leeaceae); Sohphyrnonnor (K). Pounded leaves are used externally in the treatment of wounds. Crushed tuber is taken orally as anthelmintic.

**Litsaea glutinosa** Lour. C. B. Robinson (Lauraceae); Dieng–ja-lowan (K). Decocction of bark and leaves is taken orally (15 ml, 2-3 times daily) in the treatment of dysentery. Raw bark is ground and applied externally in boils and bruises.

**Mimosa pudica** Linn. (Mimosaceae); Kynbat samthiah (K); Sensitive plant (E). Crushed leaf and root (1:1) mixed with little water to make a paste is applied locally in haemorrhoids and fistula. The affected part is kept bandaged with the paste for 24 hours and then reapplication is made. Paste prepared from leaves is applied topically in the treatment of hydrocele. Leaves and stem (1:1) are crushed to make a paste and applied locally in case of scorpion sting. Plant juice is applied topically in the treatment of ulcer and skin diseases. Leaf infusion is taken orally (5 ml, 2-3 times daily) in the treatment of liver disease, kidney problem and dysentery.

**Mimusops elengi** Linn. (Sapotaceae); Dieng bakul (K); Bakul (E). Bark juice is used as gargle in the treatment of aphthae and pyorrhoea.

**Momordica charantia** Linn. (Cucurbitaceae); Karela (K); Bitter gourd (E). Fruit juice (20-25 ml) is taken orally as hypoglycemic (once daily), as antirheumatic (10 ml, 2-3 times daily), in liver problems (15 ml, 2 times daily) and as blood purifier (15 ml, 2-3 times daily). Fruit juice (5 ml) mixed with leaf juice (5 ml) is applied locally on haemorrhoids.

**Musa paradisiaca** Linn. (Musaceae); Kakait (K); Plantain (E). The juice (30 ml) collected from the plant is taken orally (2-3 times daily) in the treatment of diarrhoea and dysentery. Crushed raw fruit mixed with curd (15 ml) is also used for the same purpose. Ripe crushed fruit is applied topically on abscess.

**Nelumbium speciosum** Willd. (Nymphaeaceae); Syntiew padma (K); Sacred lotus (E). Flower juice is taken orally (3 times daily) in the treatment of asthma. Leaf juice is used as gargle in aphthae. The juice of carpel (10–15 ml) is taken orally to prevent miscarriage.

**Nepenthes khasiana** Hook.f. (Nepenthaceae); Tiew rakot (K); Devil’s basket (E). Water accumulated inside the closed
pitcher is collected and used as ear drop in ear problems. The pitcher pounded to a paste and mixed with water is taken orally (15 ml, 3–4 times daily) in the treatment of cholera.

**Nyctanthes arbor-tristis** Linn. (Oleaceae); Diengdawainieh (K); Night jasmine (E). Leaf juice (10-15 ml) is taken orally as anthelmintic. Flower juice (15 ml) is taken orally in the treatment of black water fever. Powdered flower mixed with honey is taken orally as antispasmodic.

**Oroxylum indicum** Vent (Bignoniaceae); Diengtit–kong–ling (K); Trumpet flower (E). Root bark juice is taken orally (15 ml, 2-3 times daily) to control diarrhoea and dysentery.

**Phlogacanthus thyrsiflorus** Nees Mabberly (Acanthaceae); Soh-ja-jut (K). Fruit and leaf ash (1:1) mixed with little water is taken orally (20 ml) to treat fever.

**Piper longum** Linn. (Piperaceae); Sohmrit-khlaw (K); Long pepper (E). Powdered fruit (10 gm) mixed with honey is taken orally (5 ml, 3 times daily) in the treatment of enlarged spleen.

**Pittosporum nepaulense** (DC.) Rehder & Wilson (Pittosporaceae); Dieng-sying (K). Decoction of the bark is concentrated and taken orally (20 ml, 3 times daily) to treat cough and fever.

**Plumbago zeylanica** Linn. (Plumbaginaceae); Diengshitu (K); Ceylon leadwort (E). Root and bark (1:1) in equal proportion are ground to make paste and applied locally in the treatment of haemorrhoids and skin diseases. Decoction of the root bark (15 ml) is taken orally (2-3 times daily) to treat diarrhoea.

**Potentilla fulgens** Hook. (Rosaceae); Lyngniang-bru (K). Plant juice is used as antispasmodic. Root is chewed for the treatment of pyorrhoea. The plant is ground to make paste and is used externally on ulcers.

**Rhododendron arboreum** Sm. (Ericaceae); Dieng-tiew-saw (K). Young leaves are pounded and applied over forehead as febrifuge. Flowers (5 gm) are taken orally (once daily) to treat dysentery.

**Rosa indica** Linn. (Rosaceae); Dieng-tiew–jain heh (K); Rose (E). Seed powder (1 teaspoonful) mixed with water (30 ml) is taken in the treatment of dysentery and also as anthelmintic.

**Rubus ellipticus** Sm. (Rosaceae); Soh phairew (K). Root juice (15 ml) is taken orally (3 times daily) to treat dysentery.

**Sapindus mukorossi** Gaertn. (Sapindaceae); Soh pariah (K); Soap nut (E). Fruits (2) are crushed to paste and mixed thoroughly with water (30 ml). It is taken orally (20 ml daily, before food) in the treatment of epilepsy.

**Sida acuta** Burm. f. (Malvaceae); Soh byrthit bah (K); Country mallow (E). Leaf juice (15 ml) is taken orally (2-3 times daily) to treat fever.

**Sida rhombifolia** Linn. (Malvaceae); Soh byrthit rit (K); Yellow barbeleria (E). Powdered root bark (1 teaspoonful) mixed with sugar (1 teaspoonful) and milk (15 ml) is taken orally in the treatment of gonorrhoea. Root (50 gm), leaves (50 gm) and black pepper (2-3) are ground to make a paste and taken orally and also applied locally in snake bite. Decoction of leaves is used in the treatment of hysteria.
Sphaeranthus indicus Linn. (Asteraceae); Bat lyngkgrnong (K); Indian globe thistle (E). Seeds and roots (1:1) are ground and taken orally as anthelmintic. Bark is crushed to paste and applied locally in the treatment of haemorrhoids.

Swertia chirayita (Roxb. ex Flem.) Karst. (Gentianaceae); Sharita (K); Chiretta (E). Root juice is applied externally in scabies and internally (20 ml, 2 times daily) to prevent abortion.

Taxus baccata Linn. (Taxaceae); Soh blei (K). Leaves are used as aphrodisiae. They are also used in the treatment of epilepsy and irregular menstruation. Only a few traditional practitioners use this plant.

Tinospora cordifolia Miers. (Menispermaceae); Ksaiiblet (K). Decoction of leaves, bark and root bark (1:1:1) is taken orally (15 ml, 3 times daily) in the treatment of diarrhoea and dysentery. Leaf juice is applied over burnt area.

Tylophora indica Burm. f. Merr. (Asclepiadaceae); Kynbat kylian (K); Emetic swallow (E). Root powder mixed with little milk is used in the treatment of aphthae. Root juice is also used as gargle for the same purpose. Fruit powder (50 gm) mixed with milk (30 ml) is taken orally to remove gall bladder stone.

Vernonia anthelmintica Willd. (Asteraceae); Kynbat-jiraiong (K); Purple fleabane (E). Powdered seeds are taken orally with water (15 ml, 2-3 times daily) as anthelmintic. Seed powder moistened with water is applied over snake bitten area. Leaf juice is used as nasal drops in the treatment of nasal problems.

Viscum articulatum Burm. f. (Loranthaceae); Mangkariang-khlen-sia (K). Plant is ground to make a paste and the paste is applied over snake bitten area and also over cuts and wounds.

Vitex negundo Linn. (Verbenaceae); Tohtih-dkhar (K); Indian privet (E). Root bark is ground and mixed with local liquor to make a paste. The paste is applied over neck in the treatment of epilepsy. Warm leaves are applied in rheumatoid arthritis. Leaf powder (10 gm) mixed with water is used in the treatment of fever.

Vitex peduncularis Wall. (Verbenaceae); U-shyrtoh (K). Decoction of leaf and bark is taken orally (15 ml, 3 times daily) in the treatment of fever.

Ziziphus jujuba Mill. (Rhamnaceae); Dieng-soh-broi (K); Jujube fruit (E). Leaf powder mixed with powdered leaf of Ficus glomerata Roxb. is applied locally in scorpion sting. Leaf juice (10 ml) mixed with little salt is taken orally (3 times daily) in the treatment of dysentery.

Discussion

Present study includes information on 46 plant species belonging to 44 genera and 34 families, used as remedies for gastro-intestinal, dermal, respiratory, cardiac disorder, etc. The most common dosage forms are fresh juice, decoction, infusion and dry powder. Topical applications are indicated for ailments like cuts and wounds, dermatitis, inflammation, etc. Sometimes drugs are taken by chewing a particular plant part. These indigenous methods of treatment based on medicinal plants are still an
important part of social life and culture in Meghalaya. The claimed therapeutic values of the reported species are to be critically studied to establish their safety and effectiveness and to preserve these floras, which may otherwise be lost due to deforestation.

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