Folklore medicinal plants of Mahmora area, Sivasagar district, Assam

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Traditional methods of treatment using plants and animals are followed in Mahmora region of Sivasagar district, Assam. The plants, either single or as multi component preparations are used to treat various ailments. An attempt has been made to study 35 plant species, from 35 genera belonging to 30 families along with the method of preparation and mode of use.

Keywords: Folk medicine, Traditional medicine, Sivasagar, Assam, Medicinal plants, Ethnomedicine.

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In Mahmora area, native population is comprised of several ethnic groups namely Chutia, Deori, Ahoms, Sonowal-Kocharis, Tea-tribe, etc. These tribes have their own knowledge on traditional herbal medicine inherited from their forefathers. They also use animal parts and fish along with herbal ingredients to treat various diseases. In this report, formulations containing animal parts are not included; however, formulations containing fish have been reported.

Mahmora region of Sivasagar district is a plain area covering 296.32 sq km with approximate altitude of 0.660 masl. Sivasagar district is extended between 26° 45′–27° 15′ N latitude and 94° 25′–95° 25′ E longitude (Fig. 1). The two small rivers Dirai and Disang flow in the southern part of Mahmora. Nagaland is approximately 30 km away from this place. The north and north-eastern part are surrounded by Sivasagar town, a plain area while the southern and south-eastern part are surrounded by a small populous town Sonari. Demow and Nazira, two small towns are in west and south-west, respectively. The study area is under Saraideo subdivision. People are rice eater and generally communicate in Assamese language, though people from other parts of India also reside in the study area. The average annual rainfall is
108.44 cm and temperature varies between 15°C to 35°C.

**Methodology**

The survey was carried out from January 2003 to November 2003. Information reported by 10 numbers of Bej (Traditional healer) has been recorded. The plant specimens were preserved according to the conventional herbarium technique. Identification of plant species was carried out with the help of Botanical Survey of India (BSI), Shillong, Meghalaya.

**Results**

The plants are arranged in alphabetical order of their scientific name along with family (in parentheses), followed by local name (in Assamese language), English name (whenever available), brief notes on plant parts, mode of use, dose (quantities given in parentheses are always intended as approximate) and duration of treatment. Whenever more than two plants are used to prepare granules or other formulations, they are shown in Formula I-IV along with their method of preparation and mode of use.

*Abroma augusta* Linn. f. (Sterculiaceae); Bonkopahi (A); Devil’s cotton (E). Fresh root (4-5 gm) is crushed and mixed with 15 gm of molasses. This is divided in three parts. One part is taken orally in the empty stomach. The other two parts are taken at noon and evening for 3-4 days in the treatment of gallstone.
Acacia arabica Willd. (Mimosaceae); Toruwa kodam (A). Fresh bark is crushed and 2 gm is taken orally on the first menstrual day, 2.5 gm is taken orally on the second menstrual day and 3 gm is taken orally on the third day of menstruation in the treatment of menstrual pain.

Ageratum conyzoides Linn. (Asteraceae); Rongpuriaban (A); Goat weed (E). Leaves (3-4 Nos.) are pounded and applied on the forehead in the morning, exposing the area of application to sunlight in the treatment of headache. The granules prepared from the leaves are taken orally (3 times a day) in the treatment of pneumonia (Formula-II).

Alstonia scholaris R. Brown (Apocynaceae); Sotiana (A); Devil’s tree (E). Fresh bark (8-10 gm) is soaked in 500 ml of water for an hour and the extract is mixed with the powdered seed (1 gm) of Piper nigrum Linn. and taken orally (100 ml) after breakfast in the treatment of appendicitis. The extract is also used in the treatment of tuberculosis along with granule A and B (Formula I). The extract (100 ml) and granule A (No.1) are taken orally in empty stomach. At noon, granule B (No.1) and fresh bark (5 gm) of Terminalia chebula Retz. crushed with the seeds of Piper nigrum Linn (1 gm) are taken orally and in the evening granule B (No.1) is taken orally.

Bryophyllum calycinum Salisb. (Crassulaceae); Dupartanga (A); Air plant (E). Leaves (21 Nos.) are pounded and the juice is given orally in empty stomach in the treatment of gastric trouble and gallstone.

Caesalpinia bonducella Flem. (Caesalpiniaceae); Letaguti (A); Fever nut (E). The seed is one of the components of Formula-II, which is used in the treatment of pneumonia and one of the component of the Formula III, which is used in the treatment of diphtheria.

Camellia assamica Kuntz (Theaceae); Chah (A); Tea (E). Fresh leaf-buds (21 Nos.) are crushed with 21 leaf-buds of Psidium guajava Linn. and seeds of Piper nigrum (0.2 gm). It is taken orally before breakfast for 7-21 days in the treatment of gastric trouble.

Chrysophyllum roxburghii G. Don (Sapotaceae); Bonpitha (A); Star apple (E). The seed is used in the treatment of pneumonia (Formula-II).

Cissus quadrangularis Linn. (Vitaceae); Harjora bon (A); Edible-stemmed vine (E). Stem (15-20cm) is crushed to make a paste, applied locally and the area is bandaged for 1-2 months in the treatment of bonefracture.

Coriandrum sativum Linn. (Apiaceae); Dhania (A); Coriander (E). Fresh (5-7) leaves are crushed and the juice is mixed with equal volume of water. It is taken orally (10 ml) three times daily to stop vomiting in pregnancy.

Costus speciosus (Koen.) Smith (Costaceae); Jamlakhuti (A); Wild ginger (E). The fresh root (50 gm) is crushed and
mixed with milk of goat (50 ml) and sugar (25 gm) and is taken orally in empty stomach in the treatment of viral hepatitis. Fresh root (2-3 gm) is crushed and mixed with the rhizome of *Curcuma domestica* Valeton (8-10 gm), common salt (5 gm) and cow milk (50 ml). It is then boiled and strained. The filtrate (15 ml) is taken orally twice a day for 3-4 days in the treatment of rheumatoid arthritis.

*Curcuma domestica* Valeton (Zingiberaceae); Haldhi (A); Turmeric (E). The juice of the rhizome (20 ml) is mixed with the juice of of *Ocimum sanctum* Linn. leaves (14-15 Nos.) and taken orally (15 ml, 3 times a day) in the treatment of urticaria.

*Cyclosorus extensa* Naud. (Thelypteridaceae); Dhekia bihlongoni (A). The fresh leaf is used as a component of Formula-II and used in the treatment of pneumonia.

*Cynodon dactylon* Pers. (Poaceae); Dubari bon (A); Indian doab (E). The juice obtained from 1-2 gm of leaves is mixed with honey and sugar candy and taken orally (5ml) in the treatment of fever.

*Eupatorium odoratam* Linn. (Asteraceae); Germanibon (A); Assam lota (E). Fresh leaves (20-25 Nos.) are crushed with leaves (10-15 Nos.) of *Cyclosorus extensa* Naud. and gumresin of *Ferula narthex* Boiss. (1 gm). It is applied locally thrice daily in the treatment of skin ulcer.

*Euphorbia neriifolia* Linn. (Euphorbiaceae); Siju (A). The juice of roasted leaf and juice of 5-7 leaves of *Ocimum sanctum* Linn. are mixed with crushed rhizome of *Zingiber officinale* Rosc. (5 gm). It is warmed on metallic pot with 2-3 ml of honey and given orally (5 ml, 2-3 times daily) in the treatment of cough in children.

*Fragaria indica* Andr. (Rosaceae). Garukhis (A); Wild strawberry (E). Fresh leaf, a component of the Formula–II, is used in the treatment of pneumonia.

*Garcinia pedunculata* Roxb. (Clusiaceae); Borthekera (A). Fruit is crushed with the dried head of *Amphipnous cuchia* (order: Symbrachifarmes) and nine granules are prepared. One granule is taken orally three times a day before meal, in the treatment of hemorrhoids.

*Hibiscus rosa-sinensis* Linn. (Malvaceae); Jobaful (A); China rose (E). Flowers (21Nos.) are pounded and macerated with water (1 l), for 2-3 hours. The extract is mixed with juice of *Citrus aurantifolia* (Christm.) Swingle fruits and sugar candy (50 gm). It is taken orally (300 ml 2-3 times a day) in the treatment of menstrual pain. Fresh leaf juice (20 ml) mixed with juice of fresh rhizome of *Curcuma domestica* Valeton is taken orally (10 ml) 2-3 times a day in the treatment of urticaria.

*Hydrocotyle sibthorpioides* Lam. (Apiceae); Horumanimuni (A); Indian pennywort (E). Leaves (25 Nos.) are
pounded with sugar (50 gm) and taken orally in empty stomach for one week in the treatment of dysmenorrhea. Fresh crushed leaves (15-20 Nos.) are applied locally to the affected part in the treatment of carbunculosis.

**Leucas linifolia** Spreng. (Lamiaceae); Dron (A); Dronpushpi (E). Fresh leaves (3-4 Nos.) crushed with rhizome (5 gm) of *Curcuma domestica* Valeton and juice (5 ml) is taken orally in empty stomach for 8-10 consecutive days in the treatment of gastric trouble. Fresh leaf juice (5 ml) is also taken orally at an interval of 15 minutes in the treatment of snake bite. Pounded leaves are applied locally and leaf juice (5 ml) is taken orally (2-3 times a day) in the treatment of dog bite. The pounded leaves are applied locally in insect bite.

**Mangifera indica** Linn. (Anacardiaceae); Aam (A); Mango (E). Ripe fruit (25 gm), curd (25 gm) and juice (10-15 ml) of the rhizome of *Zingiber officinale* Rosc. are mixed and taken orally twice daily before meal, in the treatment of hemorrhoids.

**Mentha viridis** Linn. (Lamiaceae); Pudina (A); Brown mint (E). Fresh leaves (5-10 Nos.) are pounded, juice is mixed with the fruit juice (10-12 drops) of *Citrus aurantifolia* (Christm.) Swingle and is taken orally (10 ml) in the treatment of vomiting in pregnancy.

**Moringa oleifera** Lam. (Moringaceae); Sajina (A); Drumstick (E). Crushed fresh root (10-15 gm) mixed with molasses (50 gm) and powdered clove (2 gm) is macerated with water (150 ml) for 5-6 hours. The extract is taken orally after breakfast for consecutive 3-7 days in the treatment of rheumatoid arthritis.

**Ocimum sanctum** Linn. (Lamiaceae), Kolatulsi (A); Holy basil (E). Fresh leaf juice (15 ml) is taken orally in the treatment of menstrual pain. Fresh leaf juice (20 ml) mixed with the juice of *Curcuma domestica* Valeton rhizome is taken orally (10 ml) three times a day in the treatment of urticaria.

**Oldenlandia corymbosa** Linn. (Rubiaceae); Bonjaluk (A); Oldworld diamond flower (E). Entire plant (5 gm) crushed with table salt (1 gm) and warmed is applied externally in the treatment of tonsillitis. Bark and leaves are used in the treatment of pneumonia (Formula-II). The entire plant (5 gm) is used to prepare granules (Formula-IV) for the treatment of hydrophilis.

**Oroxylum indicum** Vent. (Bignoniaceae); Bhatghila (A); Trumpet flower (E). Fresh bark (20 gm) crushed to paste, mixed with cow milk (200 ml) and sugar candy 20 gm is taken orally for three consecutive days in the treatment of urinary track infection.

**Polygonum hydropiper** Linn. (Polygonaceae); Pothar bhlongoni (A). Fresh leaf is used as a component of Formula-II in the treatment of pneumonia.

**Psidium guajava** Linn. (Myrtaceae); Madhuriam (A); Guava (E). Leaf buds with equal amount of the leaf buds of *Camellia assamica* are crushed together
and the juice (15 ml) is taken orally (2-3 times a day) in the treatment of dysentery.

**Punica granatum** Linn. (Punicaceae); Dalim (A); Pomegranate (E). The juice of leaf bud (15 ml) is taken orally (2-3 times for 7 days) in the treatment of dysentery.

**Raphanus sativus** Linn. (Brassicaceae); Mula (A); Radish (E). The paste of fresh root is applied locally at night and the slice of root is applied topically in the morning in the treatment of hemorrhoids.

**Solanum ferox** Linn. (Solanaceae); Bon-bengana (A). Fresh fruit (5 gm) dried in sunlight; *Piper longum* Linn. seed (1 gm), *Piper nigrum* Linn. seeds (3 gm) and *Caesalpinia bonducella* Flem. seeds (7 gm) are crushed together and divided into 45 parts. One part is taken orally after meal three times a day in the treatment of diphtheria.

**Terminalia chebula** Retz. (Combretaceae); Silikha (A); Chebulic myrobalan (E). Fresh bark (5 gm) crushed and dried in sunlight, is soaked in water (30 ml) along with slaked lime (10 ml) for 30 minutes. The extract (15 ml) is taken orally (3 times a day) in the treatment of hepatitis. Fresh bark (10 gm) is crushed with table salt (1 gm) and boiled with water (100 ml). The decoction (15 ml) is taken orally (2-3 times a day) in the treatment of urticaria. Fresh bark (5 gm) is crushed with the seeds of *Piper nigrum* Linn. (1 gm) and taken orally at noon in the treatment of tuberculosis.

**Vitex negundo** Linn. (Verbenaceae); Posotia (A); Indian privet (E). Juice of fresh bark (5 gm) and fresh root (5 gm) are mixed with oil of *Sesamum indicum* Linn. (50 ml) and applied locally in the treatment of carbunculosis.

**Zingiber officinale** Rosc. (Zingiberaceae); Ada (A); Ginger (E). Fresh rhizome (20 gm) is crushed with 2-3 year old molasses (25 gm) and taken orally in the treatment of urticaria.

**Formula I**

<table>
<thead>
<tr>
<th>Plant Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oldenlandia corymbosa L.</td>
<td>Bark</td>
</tr>
<tr>
<td><em>Piper nigrum</em> L.</td>
<td>Seed</td>
</tr>
<tr>
<td>Zingiber officinale Rosc.</td>
<td>Rhizome</td>
</tr>
</tbody>
</table>

Parts are pounded together and 20 granules are prepared and dried in sun light. The weight of each granule is 0.5-1 gm.

**Granule B**

<table>
<thead>
<tr>
<th>Plant Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oldenlandia corymbosa L.</td>
<td>Leaf</td>
</tr>
<tr>
<td><em>Piper nigrum</em> L.</td>
<td>Seed</td>
</tr>
<tr>
<td>Zingiber officinale Rosc.</td>
<td>Rhizome</td>
</tr>
</tbody>
</table>

Parts are pounded together. Granules (20) are prepared and dried in sunlight. The weight of each granule is 0.5-1 gm.

**Formula II**

<table>
<thead>
<tr>
<th>Plant Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Polygonum hydropiper</em> L.</td>
<td>Leaf</td>
</tr>
<tr>
<td><em>Cysophyllum roxburghii</em> G. Don</td>
<td>Seed</td>
</tr>
<tr>
<td><em>Cyclosorus extensa</em> Naud.</td>
<td>Leaf</td>
</tr>
<tr>
<td><em>Caesalpinia boducella</em></td>
<td>Seed</td>
</tr>
<tr>
<td><em>Hydrocotyle sibhorpisides</em> L.</td>
<td>Leaf</td>
</tr>
<tr>
<td><em>Leucas linifolia</em> Spreng.</td>
<td>Leaf</td>
</tr>
</tbody>
</table>

**Plant Part | Quantity**

The weight of each granule is 0.5-1 gm.
Ageratum conyzoides L. Leaf 2 gm
Oldenlandia corymbosa L. Leaf bud 2 gm
Piper longum L. Seed 1.5 gm
Fragaria indica Andr. Leaf 2 gm

The plant parts are pounded together with table salt (1-2 gm). Granules are prepared each weighing 0.5 gm.

**Formula III**

<table>
<thead>
<tr>
<th>Plant</th>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solanum ferox L.</td>
<td>Fruit</td>
<td>7 gm</td>
</tr>
<tr>
<td>Piper longum L.</td>
<td>Seed</td>
<td>0.1 gm</td>
</tr>
<tr>
<td>Piper nigrum L.</td>
<td>Seed</td>
<td>50 gm</td>
</tr>
</tbody>
</table>

The plant parts are pounded together and equally divided into 45 parts. One part is taken orally three times in a day after food in the treatment of diphtheria.

**Formula IV**

(a)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oldenlandia corymbosa L.</td>
<td>Bark</td>
<td>5 gm</td>
</tr>
<tr>
<td>Piper nigrum L.</td>
<td>Seed</td>
<td>1 gm</td>
</tr>
<tr>
<td>Terminalia chebula Retz.</td>
<td>Bark</td>
<td>5 gm</td>
</tr>
</tbody>
</table>

The parts are pounded together and 30 granules are prepared.

(b)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hibiscus rosa-sinensis L.</td>
<td>Flower</td>
<td>7 gm</td>
</tr>
</tbody>
</table>

Flowers are crushed and soaked in one liter of water and the extract is mixed with juice of *Citrus aurantifolia* (Christm.) Swingle fruit.

(c)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curcuma amada Roxb.</td>
<td>Rhizome</td>
<td>3 gm</td>
</tr>
<tr>
<td>Piper nigrum L.</td>
<td>Seed</td>
<td>1 gm</td>
</tr>
</tbody>
</table>

The parts are pounded together.

(d)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alstonia scholaris Brown</td>
<td>Bark</td>
<td>5 gm</td>
</tr>
</tbody>
</table>

Fresh bark of *Alstonia scholaris* R. Br. (5 gm) is crushed and soaked in a liter of water for an hour; the extract is mixed with (c) and strained. The filtrate is collected.

One granule (a) is taken orally after breakfast, extract (b) 150 ml taken orally at noon after meal and extract (d) 150 ml is taken orally before food in the evening for treatment of hydrophilis.

**Discussion**

Present study includes information on 35 plant species used as remedies for gastrointestinal, dermal, respiratory disorders, etc. Most of the recipes are prepared from wild plants. The common dosage forms include juice, decoction, paste and granules. Sometimes a little water is added to the plant part(s) and then ground and filtered through cloth; the filtrate is known as juice. Many of the reported plant species are commonly used as food. Earlier studies on traditional medicinal plants also revealed that the economically backward local people of various ethnic groups prefer folk medicine due to low cost and sometimes it is a part of their social life and culture\(^4\text{-}^6\).

The claimed therapeutic value of the reported plant species call for modern scientific studies to establish their safety and effectiveness and to preserve those
floras which may otherwise be lost due to deforestation in Mahmora and adjoining areas.

Acknowledgement
The authors are thankful to the Botanical Survey of India, Shillong, Meghalaya for ascertaining the scientific names of the plants. Thanks are also due to all the informants of the study area for their cooperation and valuable information.

References