A REVIEW ON THE PHYTOCHEMICAL CONTENT OF FEW ETHNO-BOTANICAL PLANTS USED BY THE DIMASA TRIBE OF DIMA HASAO DISTRICT, ASSAM, INDIA

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Abstract
Dima Hasao District of Assam has rich flora and fauna diversity. This region is habitat with 13 different communities including Dimasa, Vhaiphe, Biate, Hmar, Mizo and Kukis. These indigenous groups are rich in their unique traditions, cultures, traditional knowledge and dexterous skill of using medicinal herbs profusely found in the habitat, which have evolved since time immemorial. In the present study, a total of 15 herb species curing 21 types of ailment have been reported in addition a complete account of various herbal species, their parts used, phytochemical content, mode of preparation and dosage for curing diseases like malaria, rheumatism, diabetes etc. prevailing among Dimasa tribe has been investigated. The study, thus underlines the potential of the ethno-medicinal wealth and the need for documentation of traditional ecological knowledge pertaining to the ethno-medicinal plant in their conservation and utilization for greater benefit of mankind.

Key words: Dimasa tribe, Ethno-medical, Conservation, Utilization.

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Introduction
Dima Hasao, the only Hill station of Assam is considered as ‘Nature’s Treasure Grove’. The Dimasa is a scheduled Tribe in the Autonomous Hills district of Assam. The district is located in the southern part of Assam, India in between 24°582 N and 25°472 N latitudes and 92°272 E and 93°432 E longitudes. A number of ethnic groups viz., Dimasa, Jeme Nagas, Hmar, Karbis, Biates, Hrangkhal, Vaiphei, Khasis, Mizo and Khelma etc. With their unique culture and tradition inhabit in the hilly terrains of the district. Forest cover of the district is 88.71 % out of its total geographical area of 4,888 sq km.

The indigenous people of the region practice their own traditional healthcare system. They have a vast understanding about plants, plant parts as means for their food and medicine. In the present study a documentation of several herb species is done to highlight the utilization and richness ethno-medical plants of the area. The paper also highlights the phytochemical content present in the studied plants parts which helps in the cure of the ailments.

Methodology
Interview Method
Information on ethno-medicinal plants, have been gathered from the village chiefs of the Dimasa village, the Traditional healers, the local people through discussion and informal interview. Prior informed consent of the village chiefs and other respondents were obtained before conducting the interview. Traditional healers were visited to gather knowledge about the mode of preparations of the medicines from different parts of the plants.

Identification of specimen
Information about the plants were recorded with respect to their vernacular names, plant parts used, process of preparation of medicine and mode of application. The doses for the treatment of a particular disease, or diseases were also recorded. These specimens were identified using relevant floras and...
Photographs of the Collected specimens

Fig. 1: *Ageratum conizoides*

Fig. 2: *Allium chinense*

Fig. 3: *Capsicum frutescans*

Fig. 4: *Centella asiatica*

Fig. 5: *Chromolaena odorata*

Fig. 6: *Datura innoxia*

Fig. 7: *Eryngium foetidum*

Fig. 8: *Euphorbia hirta*
A review on the phytochemical content of few ethno-botanical plants used by the Dimasa Tribe

Fig. 9: Houttuynia cordata

Fig. 10: Mimosa pudica

Fig. 11: Mirabilis jalapa

Fig. 12: Musa paradisiaca

Fig. 13: Rungia parviflora

Fig. 14: Solanum integrifolium

Fig. 15: Zingiber officinalis
### Table: Medicinal Herbs species of Dimahsao District.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of Plant Species &amp; Family</th>
<th>Phytochemical contents</th>
<th>Parts Used</th>
<th>Diseases</th>
<th>Mode Of Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Ageratum conizoides</em>, Samberma; Asteraceae</td>
<td>Alkanoids, Flavanoids, Tannins, Saponins, Glycosides, Steroids, Cumarins, Charomones, Terpenoids, Resins, Cardenolides and Phenol&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Leaf</td>
<td>Bleeding</td>
<td>Fresh leaf paste is applied directly to cuts to stop bleeding&lt;sup&gt;4&lt;/sup&gt;.</td>
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<tr>
<td>2.</td>
<td><em>Allium chinense</em>, Salang; Liliaceae</td>
<td>Saponins, Flavanoids, Anthocyanins&lt;sup&gt;19&lt;/sup&gt;</td>
<td>Bulb</td>
<td>Constipation</td>
<td>Bulbs are meshed and are taken with hot water once in a week&lt;sup&gt;4&lt;/sup&gt;.</td>
</tr>
<tr>
<td>3.</td>
<td><em>Capsicum frutescens</em>, Morsai berma; Solanaceae</td>
<td>Flavanoid, Phenol&lt;sup&gt;12&lt;/sup&gt;</td>
<td>Fruit</td>
<td>Leech bite</td>
<td>Fruit paste is applied directly to stop bleeding&lt;sup&gt;4&lt;/sup&gt;.</td>
</tr>
<tr>
<td>4.</td>
<td><em>Centella asiatica</em>, Mekharing; Apiaceae</td>
<td>Alkanoid, Flavanoid, Terpenoid, Tannin, Glycoside, Quinine and Courmine&lt;sup&gt;13&lt;/sup&gt;</td>
<td>Whole Plant</td>
<td>(i) Dysentery (ii) Urinary Disease. (iii) Wound Healing.</td>
<td>(i) A curry to be prepared from the leaves without using chilli. (ii) Leaf paste with honey to be consumed before food, every morning and evening. (iii) Fresh paste is applied till it is cured.</td>
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<td>5.</td>
<td><em>Chromolaena orodata</em>, Sangkhabli; Asteraceae</td>
<td>Saponins, Phytates, Tannins, with little content of alkaloids, flavonoids and Cyanogenic glycosides&lt;sup&gt;18&lt;/sup&gt;</td>
<td>Leaf</td>
<td>Constipation</td>
<td>Fresh leaf juice is mixed with fresh lemon juice and consumed till it is cured&lt;sup&gt;8&lt;/sup&gt;.</td>
</tr>
<tr>
<td>6.</td>
<td><em>Datura innoxia</em>, Khimbung; Solanaceae</td>
<td>Alkotrine, Scopolamine, Flavonoids, Cardiac Glycosides, Essential Oils, Phenols&lt;sup&gt;15&lt;/sup&gt;</td>
<td>Leaf</td>
<td>Food Allergy</td>
<td>Leaf paste is applied directly till it is cured&lt;sup&gt;4&lt;/sup&gt;.</td>
</tr>
<tr>
<td>7.</td>
<td><em>Eryngium foetidum</em>, Dhania bakhori; Apiaceae</td>
<td>Glycosides, Flavanoids, Terpenoids, Sterols, Tannins&lt;sup&gt;9&lt;/sup&gt;</td>
<td>Leaf</td>
<td>Food Allergy</td>
<td>In allergy like stomach ache and vomiting, leaf paste is immediately taken with water&lt;sup&gt;4&lt;/sup&gt;.</td>
</tr>
<tr>
<td>8.</td>
<td><em>Euphorbia hirta</em>, Khutra bushu ganang; Euphorbiaceae,</td>
<td>Flavanoids, Alkanoids, Steroids, Phenols&lt;sup&gt;16&lt;/sup&gt;</td>
<td>Leaf</td>
<td>Boils &amp; Wounds</td>
<td>Leaf paste is directly applied till it is cured&lt;sup&gt;20&lt;/sup&gt;.</td>
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<tr>
<td>9.</td>
<td><em>Houttuynia cordata</em>, Mojoukhmo; Saururaceae</td>
<td>Flavanoids, glycosides, pyridine, alkaloids and essential oils&lt;sup&gt;7&lt;/sup&gt;</td>
<td>(i) Rhizome (ii) Leaf &amp; Stem</td>
<td>(i) Treating wounds and skin problems. (ii) Dysentery, Anemia, Gastritis, Stomach ulcer.</td>
<td>(i) The juice of rhizome is applied on wounds&lt;sup&gt;7&lt;/sup&gt;. (ii) Eaten raw or made chutney till the disease is cured&lt;sup&gt;7&lt;/sup&gt;.</td>
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<tr>
<td>10.</td>
<td><em>Mimosa pudica</em>, Sham gablao; Fabaceae</td>
<td>Terpenoids, Flavanoids, Glycosides, Alkaloids, Quinines, Phenols, Tannins, Saponnins, Cumarins&lt;sup&gt;6&lt;/sup&gt;.</td>
<td>(i) Leaf (ii) Root (iii) Leaf &amp; Root</td>
<td>(i) Treating wounds (ii) Toothache (iii) Blood Sugar Level</td>
<td>(i) Grinding the leaf with water and the extracted juice is used for treating wounds. (ii) Dried roots are boiled in water and the solution is used for gurgling till it is cured. (iii) Powder of leaf and root can be taken daily to bring down the blood sugar level.</td>
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<tr>
<td>11.</td>
<td><em>Mirabilis jalapa</em>, Samkabli; Nyctaginaceae</td>
<td>Alkanoids, Saponnins, Flavanoids, Tannins, Phenols&lt;sup&gt;17&lt;/sup&gt;.</td>
<td>Leaf</td>
<td>Skin itch, Sprains &amp; Swelling</td>
<td>For skin itch, fresh leaf juice is applied regularly. For sprains &amp; swelling poultice of fresh leaf is applied&lt;sup&gt;17&lt;/sup&gt;.</td>
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Table continue ..........
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<td>12.</td>
<td>Musa paradisiaca, Laigonthai ;Musaceae</td>
<td>Alkanoids, Tannins, Sapponins, Phenols, Oxalates, Flavanoids, Phytates10</td>
<td>Flower</td>
<td>Malaria</td>
<td>Flowers are meshed and eaten raw till disease is cured4.</td>
</tr>
<tr>
<td>13.</td>
<td>Rungia parviflora, Sbai thai; Acanthaceae</td>
<td>Phytosterols, Glycosides, Phenols, Terpenes14.</td>
<td>Leaf</td>
<td>Cuts, Wounds &amp; Small-Pox</td>
<td>Leaf paste is applied till the ailment is cured14.</td>
</tr>
<tr>
<td>14.</td>
<td>Solanum integrifolium, Kumkathai;Solanaceae</td>
<td>Alkanoids,Flavanoids, Phytosterols, Sapponins, Vitamin C moderate amount of cardiac glycosides, steroids tannins, and trace amount of Terpenoids8.</td>
<td>Fruit</td>
<td>High Blood Pressure</td>
<td>The unripe fruits are eaten daily to check high blood pressure4.</td>
</tr>
<tr>
<td>15.</td>
<td>Zingiber officinalis, Hazing ;Zingiberaceae</td>
<td>Alkanoids, Tannins, Glycosides, Sapponins. Flavonoids,Terpenoid15.</td>
<td>Rhizome</td>
<td>Sore Throat</td>
<td>Rhizome is roasted and eaten with salt to relieve sore throat15.</td>
</tr>
</tbody>
</table>


Results

In the following enumeration, the plants are arranged alphabetically, giving information about their botanical name, local name and family. This is followed by the details of their phytochemical contents, parts used, diseases cured and mode of preparation. Contributions on the study of traditional plants made by Tamuli & Saikia (2004) on Zeme Naga and on Dimasa Tribe by Sajem & Jayshree (2012), was a boon to the scientific world.

Discussion

A preliminary study on the ethno-botanical plants used by the Dimasa tribe of Dima Hasao district has been done, in which 15 species of plants has been recorded, curing about 21 different types of ailments like constipation, dysentery, urinary disease, food allergy, anemia, blood sugar etc. The earlier workers have documented the ethno-medicinal plants without noting the phytochemical content. But in this preliminary study, the phytochemical content which is actually responsible for the cure of the disease is being noted.

Different parts of the documented plant species were used as medicines Leaves of Chromolaena odorata and bulb of Allium chinense are used widely for the treatment of constipation. The leaves of Datura innoxia and Eryngium foetidum serves as an immediate medicine for food allergy. The outstanding medical contribution of Mimosa pudica and Solanum integrifolium to cure high blood pressure is noteworthy. Species like Centella asiatica, Houttuynia cordata and Rungia parviflora have been used in day to day lives for the treatment of cuts and wounds. Along with the medicinal importance, the reported species also possess different qualities like Eryngium foetidum, Musa paradisiaca, Solanum integrifolium and Zingiber officinalis are used for food purposes. The leaves of Musa paradisiaca are also used as packing materials12. Thus the herbs also have vital economic importance which helps to enhance the traditional lifestyle of the tribes of the region, thereby substantially influencing their traditional healthcare system.

Conclusion

It can be concluded that a deep-rooted heritage surrounding medicinal plants still forms an inseparable part in the life of the Dimasa tribes. The tribal, who live in physical isolation are preserving the nature silently. The study also opens new avenues to scrutinize these rich natural resources for further studies, development of potential herbal medicines and to the development of the tribe as a whole.

Acknowledgement

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