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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.

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.

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Regarding the contributions of ethno-medicinal plants, publications were made by Albert L. Sajem & Kuldip Gosai (2006), Albert L Sajem, Jayshree Rout, Minaram Nath (2008), (2009) & (2010), Tamuli & Saikia (2004).

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[1].

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[1]. These specimens were identified using relevant floras and

Photographs of the Collected specimens

Fig. 1: *Ageratum conizoides*

Fig. 2: *Allium chinense*

Fig. 3: *Capscicum fructescans*

Fig. 4: *Centella asiatica*

Fig. 5: *Chromolaena odorata*

Fig. 6: *Datura innoxia*

Fig. 7: *Eryngium foetidum*

Fig. 8: *Euphorbia hirta*

Fig. 9: *Houttuynia cordata*

Fig. 10: *Mimosa pudica*

Fig. 11: *Mirabilis jalapa*

Fig. 12: *Musa paradisiaca*

Fig. 13: *Rungia parviflora*

Fig.15: *Zingiber officinalis*

Fig. 14: *Solanum integrifolium*

Table : Mediclinal Herbs species of Dimahsao District.

Sl. No	Name of Plant Species& Family	Phytochemical contents	Parts Used	Diseases	Mode Of Preparation
1.	*Ageratum conizoides,* Samberma;Asteraceae	Alkanoids, Flavanoids, Tannins, Saponnins, Glycosides, Steroids, Cumarins, Charomones, Terpenoids, Resins, Cardenolides and Phenol[5].	Leaf	Bleeding	Fresh leaf paste is applied directly to cuts to stop bleeding[4].
2.	*Allium chinense,* Salang ;Liliaceae	Sapponins, Flavanoids, Anthocyanins[19] .	Bulb	Constipation	Bulbs are meshed and are taken with hot water once in a week[4].
3.	Capsicum frutescens, Morsai berma; Solanaceae	Flavanoid, Phenol [12].	Fruit	Leech bite	Fruit paste is applied directly to stop bleeding[4].
4.	*Centella asiatica,* Mekharing ;Apiaceae	Alkanoid,Flavanoid, Terpenoid, Tannin, Glycoside, Quinine and Courmine[13].	Whole Plant	(i)Dysentery (ii) Urinary Disease. (iii) Wound Healing.	(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.
5.	*Chromolaena orodata,* Sangkhabli; Asteraceae	Saponnins, Phytates, Tannins, with little content of alkaloids, flavonoids and Cyanogenic glycosides[18].	Leaf	Constipation	Fresh leaf juice is mixed with fresh lemon juice and consumed till it is cured[4].
6.	*Datura innoxia,* Khimbung; Solanaceae	Altropine, Scopolamine, Flavonoids, Cardiac Glycosides, Essential Oils, Phenols[11].	Leaf	Food Allergy	Leaf paste is applied directly till it is cured[4].
7.	*Eryngium foetidum,* Dhania bakhori; Apiaceae	Glycosides,Flavanoids, Terpenoids, Sterols, Tannins[9].	Leaf	Food Allergy	In allergy like stomach ache and vomiting, leaf paste is immediately taken with water[4].
8.	*Euphorbia hirta,* Khutra bushu ganang ;Euphorbiaceae,	Flavonoids,Alkanoids, Steroids, Phenols[16].	Leaf	Boils &Wounds	Leaf paste is directly applied till it is cured[20].
9.	*Houttuynia cordata,* Mojoukhmo; Saururaceae	Flavanoids, glycosides, pyridine alkanoids and essential oils[7].	(i) Rhizome (ii) Leaf & Stem	(i) Treating wounds and skin problems. (ii) Dysentery, Anemia, Gastritis, Stomach ulcer.	(i) The juice of rhizome is applied on wounds[7]. (ii) Eaten raw or made chutney till the disease is cured[7].
10.	*Mimosa pudica,* Sham gablao;Fabaceae	Terpenoids,Flavanoids, Glycosides, Alkaloids, Quinines, Phenols, Tannins, Saponnins, Cumarins[6].	(i) Leaf (ii)Root (iii)Leaf& Root	(i)Treating wounds (ii)Toothache (iii)Blood Sugar Level	(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.
11.	*Mirabilis jalapa,* Samkabli; Nyctaginaceae	Alkanoids, Saponnins, Flavanoids, Tannins, Phenols[17].	Leaf	Skin itch, Sprains & Swelling	For skin itch, fresh leaf juice is applied regularly. For sprains & swelling poultice of fresh leaf is applied[17].

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Sl. No	Name of Plant Species& Family	Phytochemical contents	Parts Used	Diseases	Mode Of Preparation
12.	*Musa paradisiaca,* Laigonthai ;Musaceae	Alkanoids, Tannins, Sapponins, Phenols, Oxalates, Flavanoids, Phytates[10]	Flower	Malaria	Flowers are meshed and eaten raw till disease is cured[4].
13.	*Rungia parviflora,* Sbai thai; Acanthaceae	Phytosterols, Glycosides, Phenols, Terpenes[14].	Leaf	Cuts, Wounds & Small-Pox	Leaf paste is applied till the ailment is cured[14].
14.	*Solanum integrifolium,* Kumkathai;Solanaceae	Alkanoids,Flavanoids, Phytosterols, Saponnins, Vitamin C moderate amount of cardiac glycosides, steroids tannins, and trace amount of Terpenoids[8].	Fruit	High Blood Pressure	The unripe fruits are eaten daily to check high blood pressure[4].
15.	*Zingiber officinalis,* Hazing ;Zingiberaceae	Alkanoids, Tannins, Glycosides, Saponnins. Flavonoids,Terpenoid[15].	Rhizome	Sore Throat	Rhizome is roasted and eaten with salt to relieve sore throat[15].

standard literature, Hooker 1872-1897; Kanjilal et al 1934-1940; Balakrishnan 1981 & 1983; Deb 1981 & 1983; Joseph 1982 and Haridasan & Rao 1985 & 1987) and subsequently confirmed at Assam Herbarium.

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 materials[12]. 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.

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References

Amadi, B.A., M.K.C. Daru and E.N. Agomuo (2012). Chemical profiles of leaf, stem and flower of *Ageratum conizoides* in *Asian Journal of Plant Science and Research*, **2(4)**:428-432.

Ayuba *et al.* (2011). Phytochemical and proximate composition of *Datura innoxia* leaf, seed, stem, pod and root in *Journal of Medicinal Plant Research,* **5(14)**: 2952-2955.

Chitra, M. *et al.,* (2011). Screening of Phytochemical and In Vitro Activity Of *Euphorbia hirta* L. in *Journal of*

Chemical and Pharmaceutical Research, **3(6)**: 110-114.

Huang *et al.,* (2012). *Euphorbia hirta*: A review on its ethnopharmacology, phytochemistry and pharmacology in *Journal of Medicinal Plants Research*, **6(39)**: 5176-5185.

K., Vijayaraghavan, J. Rajkumar and M.A. Sayed (2017). Efficacy of *Chromolaena orodata* leaf extracts for the healing of rat excision wounds in *Veterinarni Medicina*, **62(10)**: 565-578.

Kumar, Satish and Eram Fatima (2017). *Mirabilis jalapa*: Phytochemical screening and Anti-stress Activity of Methanolic Leaf Extract in *Journal of Pharmacognosy and Phytochemistry,* **6(6)**: 1502-1508.

Layanya *et al*. (2016). *Musa paradisiaca*- A review on Phytochemistry and Pharmacology *in World Journal of Pharmaceutical and Medical Research*, **2(6)**: 163-173.

Lingaraju, D.P., M.S. Sudarshana, C. Mahendra and K.P. Rao (2016). Phytochemical Screening and Antimicrobial Activity of Leaf Extracts of *Eryngium foetidum* L. in *Indo American Journal of Pharmaceutical Research,* **6**:**6(02)**.

Mohan *et al.,* (2011). Phytochemical Analysis of *Centella asiatica* L. in *World Journal of Pharmacy and Pharmaceutical Sciences,* **5(8)**: 1342-1347.

Mohan, Sandhya Madan, B. Pandey and G. Sunita Rao (2015). Phytochemical Analysis and Uses Of *Mimosa pudica* Linn.in *IOSR. Journal of Environmental Science,Toxicity and Food Technology*, **1(3)** : 01-04.

Rahim, A.R. and Ishak Mat (2012). Phytochemical Contents of *Capsicum frutescens,Capsicum annum*,aqueous extracts in *International Conference on Biological and Life Sciences IPCBEE,* **40:**.

Rathi, R.S., Somnath Roy, A.K. Mishra and S.K.Singh (2013). Ethnobotanical notes on *Houttuynia cordata* Thunb.in North-eastern region of India in *Indian Journal of Natural Products and Resources*, **4(4)** : 432-435.

Riaz *et al.,* (2015). Antimicrobial property and phytochemical study of ginger found in local area of Punjab, Pakistan in *International Current Pharmaceutical Journal*, **4(7)**: 405-409.

Rout, Jayashree, A.L. Sajem and M. Nath (2012). Medicinal plants of North Cachar Hills district of Assam used by Dimasa tribe in *Indian Journal of Traditional Knowledge*, **(3)**: 520-527.

S.Boukeria et al., (2016). Phytochemical and physiolochemical characterization of *Allium sativum* and *Allium cepa* L. Essential Oils in *J. Mater. Environ. Sci.,***7(7)** : 2362-2368.

Sajem, A.L. and K. Gosai (2006). Traditional use of medicinal plants by the Jaintia tribes in North Cachar Hills district of Assam, northeast India. *In Journal of Ethno biology and Ethno medicine,* **2**:33.

Sajem, A.L., J. Rout and M. Nath (2008). Traditional tribal knowledge and status of some rare and endemic medicinal plants of North Cachar Hills district of Assam, Northeast India. *Ethnobotanical Leaflets,* **12**: 261-275.

Sudheesh, S., G. Presannakar, S. Vijayakumar and N.R. Vijayalashmi (1997). Hypolipidemic effect of Flavanoids from *Solanum melongena, Plant foods for Human Nutrition*, **51**: 321-330.

Swain *et al.,* (2011). Comparative Evaluation Of Anti-Pyretic and Analgestic Activities of *Rungia repens* and *Rungia pectinata* in *Asian Journal of Pharmaceutical and Clinical Research,* **4(2)**: 103-106.

Tamuli, P. and R. Saikia (2004). Ethno-medico- botany of the Zeme (Naga) tribe of North Cachar Hills District of Assam. *Indian Journal of Traditional Knowledge.,* **3 (4)**: 430-436.