Trends in Life Sciences
An International Peer-reviewed Journal
www.sciencejournal.in

PLANTS USED IN THE TREATMENT OF FEVER BY THE SCHEDULED CASTE COMMUNITY OF ANDRO VILLAGE IN IMPHAL EAST DISTRICT, MANIPUR (INDIA)

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ABSTRACT
In this paper an attempt has been made to enumerate plants used in traditional phytotherapy by the people of Andro village, a realistic scheduled caste community in Imphal East District (Manipur). Each and every elderly people of Andro have common knowledge and easy cure for many diseases like cold, coughs, dysentery, diarrhoea, fever, etc. Most of the elderly people uses and prepare different types of medicines from different plant parts from time to time. The present study reveals that 27 plant species were found to be used by the schedule caste community of Andro in the treatment of fever. They have developed their own methods for preparation and modes of application and administration for every drug they used. Some of the important plants used against fever are *Aegle marmelos* (Linn.) Correa, *Arundo donax* Linn., *Chamaesvce hirta* (L.) Millsp, *Clerodendrum colebrookianum* Walp., *Curcuma caesia* Roxb., *Curcuma longa* Linn., *Cyperus rotundus* Linn., *Drymaria diandra* Blume, *Elsholtzia communis* (Coll. & Hemsl.) Diels, *Hedychium coronarium* Koenig ex Retz., O*cimum americanum* Linn. and *Zingiber officinale* Rosc. Efforts are being made to ascertain the chemical composition of these plant species.

KEYWORDS: Andro, Fever, Scheduled Caste Community.

INTRODUCTION

Traditional healers are found in most societies. They are often part of a local community, culture and tradition, and continue to have high social standing in many places, exerting influence on local health practices. One advantage in preferring traditional medicine is that traditional healers are found within a short distance, are familiar with the patient's culture and the environment and the costs associated with treatments are negligible (Rinne, 2001). They work on body and mind together to help cure an illness. Traditional medical knowledge of medicinal plants and their use by indigenous healers are not only useful for conservation of cultural traditions and biodiversity but also for community healthcare and drug development in the present and future (Pei, 2001). Manipur, a hilly state in the remote north-eastern corner of India has its own scope for Ethnobotanical studies since it is inhabited by numerous scheduled tribe and scheduled caste communities. Manipur is very rich in the resource of folk medicine and it has been functioning by a pluralistic society. A good number of papers have been published in recent years on the Ethnobotany of Manipur with main emphasis on medicinal plants (Trivedi and Sharma, 2004; Sharma *et al*. 2003 a and b; Devi *et al*. 2013; Singh *et al*.2003 & 2013 and Sinha, 1996).

DESCRIPTION OF THE STUDY SITE

The present study site Andro village is located at the foothills of the Nongmaiching (Baruni) hills at a distance of about 24km from Imphal the capital city of Manipur along the Imphal-Ngariyan hill road. The study site is included under the Imphal East District of Manipur State (India). Andro village is one of the oldest villages in Manipur. The exact location of Andro village is at the intersection of $94^0.2^{'}$E longitude and $24^0.44^{'}$N latitude. The elevation of Andro is about 783m above the mean sea level. It has an area of about 4.0 km^{-2}. Andro is surrounded by Sanapat in the east, Uchon on the south, Maringthel in the west and Baruni (Nongmaiching) Hills on the north. The inhabitants of this village are listed as a scheduled caste group of Manipur under the Scheduled Castes and Scheduled Tribes orders (Amendments) Act 1956 (Act no. 6 of 1956). The groups which are generally known as 'Lois' has been included in the list of scheduled castes and tribes of Manipur. The word Andro is derived from the word "Handro" meaning return back after a long separation. The people of Andro belong to the 'Chakpas'. They still maintain their caste solidarities with a primitive state of economic life. Hey depend mostly on surrounding plant communities with traditional agriculture as a primary means of livelihood. Andro village is divided into thirteen Localities (Leikais in Manipuri). The people of Andro have its own origin, tradition, culture and history and still maintaining their realistic ideology. The culture of a community

determines its health culture. Health problems and practices of any community are greatly influenced by the interplay of complex social, economic and political factors. Ethnomedicine deals with those beliefs and practices relating to health and diseases which are the products of indigenous cultural development. There are extreme rules and regulations as "do's" and "don'ts" regarding food habit, untouchability, breach of taboos etc. Each and every people of Andro have common knowledge and easy cure for many simple and common diseases like cold, cough, dysentery, diarrhea, fever, burns, headaches etc.

MATERIALS AND METHODS

The paper is based on the data collected on ethnomedicinal practices among the people of Andro Village during January 2013 to May, 2014. For the present study all the 13 localities under Andro village have been exhaustively investigated ethnobotanically using standard methods for the collection of ethnobotanical information (Jain, 1987; Jain and Mudgal, 1999 and Martin, 1994). Ten ethnomedicine specialists or local medical practitioners (Maiba = Male and Maibi = Female in Manipuri) were contacted from different localities of Andro Village. Elderly persons, heads of the settlements and persons having thorough knowledge of medicinal plants and their utilization in day-to-day life were also consulted. The information gathered from one group or locality was compared with those collected from other groups. After detailed interview data were collected, based on the nature and use of medicinal plants in controlling and curing of fever.

RESULTS AND DISCUSSION

In the following enumeration the species are arranged as per Engler and Prantle's system of classification followed by the family names, common English names, local names (Manipuri), short description of the plant, phenology, part or parts used in the preparation and method of preparation. Commonly used synonyms have also been given for some of the species.

Table 1. List of Plants used in the treatment of Fever

Name of the Species	Family	Local name	Parts used and Mode of use
Aegle marmelos (Linn.) Correa	Rutaceae	Harikhagok	Powder of dry pulp mixed with honey is prescribed for oral consumption in fever. Juice extracted from fresh leaves along with honey is taken internally in high body temperatures.
Allium ascalonicum Linn.	Alliaceae	Tilhou akuppi	The poultice made from the bulbs is rubbed on the neck and forehead of children suffering from fever.
Allium sativum Linn.	Alliaceae	Chanam	The poultice leaf along with mustard oil is used externally to reduce child fever. Fresh bulb is crushed and used as poultice and applied on the forehead to reduce high fever.
Allium tuberosum Rottb. ex Spreng.	Alliaceae	Maroi nakuppi	The poultice of the leaves is applied on the forehead to reduce fever in children.
Arundo donax Linn.	Poaceae	Yengthou	The poultice made of smashed tender shoot is applied as poultice and the fresh extract of the same mixed with honey is prescribed orally in fever.
Brassica campestris Linn. var. *sarson* Prain	Brassicaceae	Hanggam	Leaf is crushed and the poultice is applied on child's forehead to reduce body temperature in fever.
Chamaesvce hirta (L.) Millsp Syn. *Euphorbia hirta* Linn.	Euphorbiaceae	Pakhang leiton	Decoction of the plant is used in uncontrolled rise of the body temperature by smearing the decoction to all parts of the body.
Clerodendrum colebrookianum Walp.	Lamiaceae	Kuthap	The crushed leaves as poultice are applied on the forehead in fever and the hot decoction of the leaves is also given orally in fever.
Corchorus capsularis Linn.	Tiliaceae	Ananba	The decoction of the crushed seeds is prescribed orally in fever.
Coriandrum sativum Linn.	Apiaceae	Phadigom	The leaf paste after mixing with mustard oil and common salt is applied on the forehead, neck, abdomen and chest to reduce high body temperature in children.
Curcuma caesia Roxb.	Zingiberaceae	Yaimu	The tuber is crushed and boiled and the extract is given in different dosages for different age groups to reduce fever.
Curcuma longa Linn.	Zingiberaceae	Yaingang	Fresh extract of the rhizome in mixed with honey is prescribed against high body temperature and all types of fever.

Table 1 . Continued…..

Name of the Species	Family	Local name	Parts used and Mode of use
Cyperus rotundus Linn.	Cyperaceae	Sembang Kaothum	The crushed extract of the rhizome along with honey is prescribed orally in high body temperatures.
Drymaria diandra Blume	Caryophyllaceae	Tandan pambi	Fresh extract of the whole plant is given orally for reducing high body temperature and fever in children.
Eclipta prostrata (Linn.) Linn. Syn. *E. alba* (L.) Hassk.	Asteraceae	Uchi sumbal	The whole plant is crushed and filtered after adding some water. The filtrate is mixed with a little honey and prescribed in cough, and all types of fever.
Elsholtzia communis (Coll. & Hemsl.) Diels	Lamiaceae	Lomba	Decoction of the leaves and inflorescence is prescribed orally in fever.
Hedychium coronarium Koenig ex Retz.	Zingiberaceae	Takhellei angouba	Decoction of the rhizome prescribed orally against fever.
Ipomoea batatas (Linn.) Lamk.	Convolvulaceae	Manggra	Boiled extract of the leaves is given orally in fever.
Justicia adhatoda Linn. Syn. *Adhatoda zeylanica* Medicus	Acanthaceae	Nongmangkha angouba	Raw leaves or inflorescence are eaten with Ametpa (a local delicacy prepared with chilies and fermented small fishes called Ngari) or decoction of the leaves is taken orally for 3 days once daily. This treatment will automatically cure cough and fever. Sometimes the leaves and inflorescence are eaten after frying also.
Nyctanthes arbor-tristis Linn.	Oleaceae	Singgarei	Leaf is crushed with a little water and the extract is mixed with honey (2:1) at the dose of 3 teaspoonful three times a day.
Ocimum americanum Linn.	Lamiaceae	Mayangba	The fresh extract of the leaves mixed honey taken orally is a good remedy for fever.
Ocimum basilicum Linn.	Lamiaceae	Naosheklei	Crushed extract of the leaves are applied on the forehead to reduce fever.
Phyllanthus emblica L.	Euphorbiaceae	Heikru	The decoction of dried fruits and seeds are used orally as a cure for fever.
Santalum album Linn.	Santalaceae	Cha chandan	The paste of the powdered wood in water is applied on the forehead in headaches and fever.
Solanum ferox L. Syn. *S. indicum* Linn.	Solanaceae	Shing khanga	It is one of the most important plants used by the people of Andro in fever. Fresh fruit is eaten after crushing with or without honey.
Zingiber officinale Rosc.	Zingiberaceae	Shing (Haodei)	The fresh juice extract of the rhizomes mixed with honey is prescribed in high body temperature and fever. The extract obtained by crushing the rhizome along with the tender shoot of *Agave cantula* Roxb. (Family: Agavaceae; Local name: Kewa) is prescribed in typhoid fever.

Efforts have also been made to find out the correct botanical names in accordance with the latest International Code of Botanical Nomenclature (ICBN). The correct authors' names have also been given as per *Authors of plant names* of Royal Botanic Garden, Kew (Brummit and Powell, 1992).

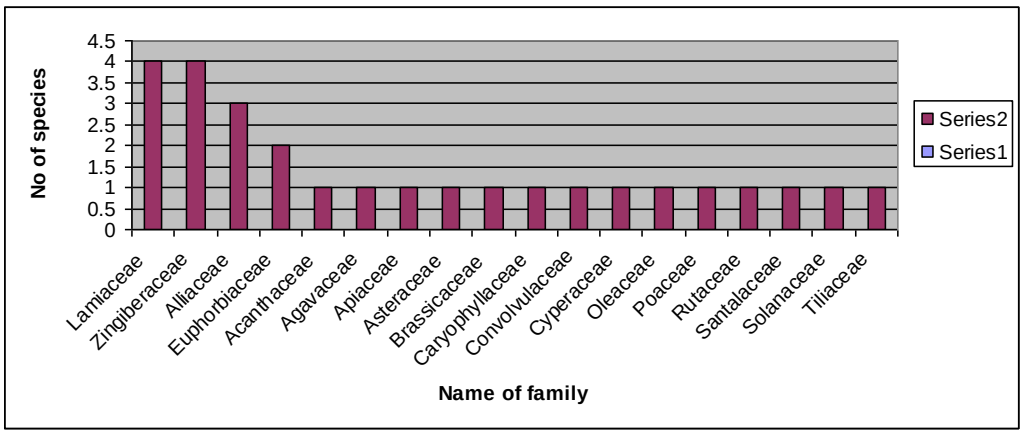

Figure 1: Distribution of species under different families

The present study reveals that 27 plant species belonging to 23 genera were found to be used by the scheduled caste community of Andro in the treatment of fever. These 27 plant species are distributed over 18 families (14 dicotyledons and 4 monocotyledons). The families Zingiberaceae (4 species), Lamiaceae (4 species), Alliaceae (3 species), and Euphorbiaceae (2 species) have more than one species being used in the treatment of fever by the people of Andro. The remaining 15 families have only 1 species each used in fever treatment (Figure 1). Out of the 27 species recorded, 15 species are annual herbs, 4 perennial herbs, 4 shrubs and 4 trees (Figure 2).

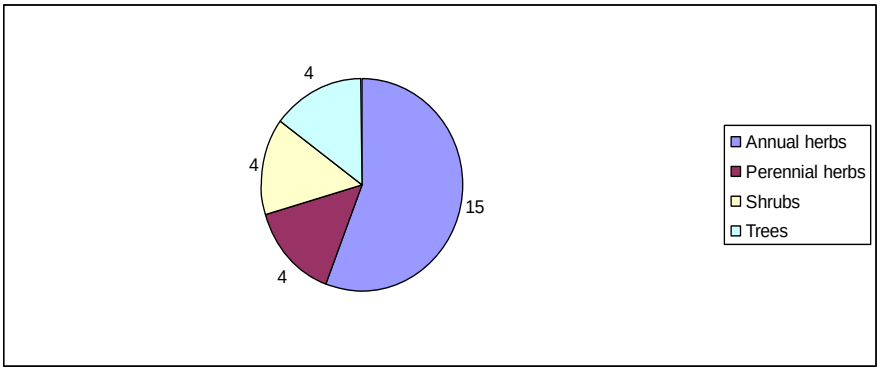

Figure 2: Growth-form of the different plants species

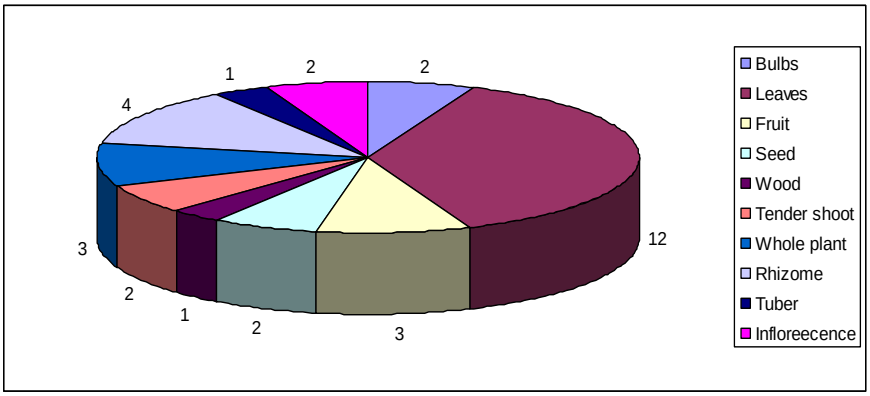

Figure 3: Uses of different plant parts in fever treatment

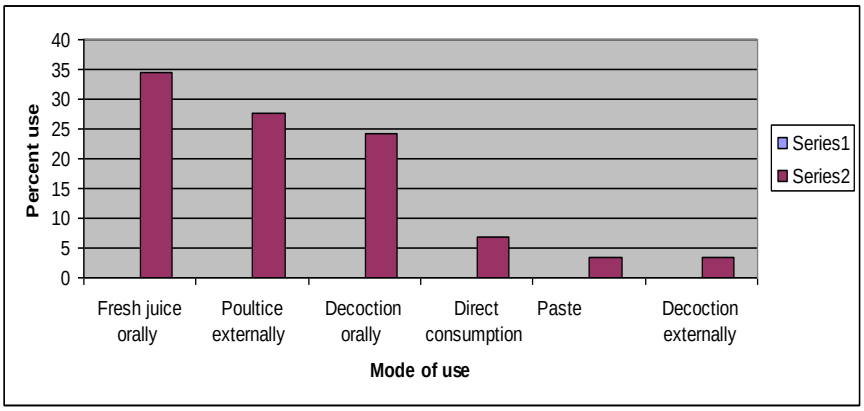

Figure 4: Mode of Application of the used species (%)

1. *1.Clerodendrum colebrookianum* Walp.

2. *Drymaria diandra* Blume

3. *Solanum ferox* L.

4. *Phyllanthus emblica* L.

5. *Nyctanthes arbor-tristis* Linn.

6. *Chamaesvce hirta* (L.) Millsp

Figure 5. Plants used in the treatment of fever by the scheduled caste community of Andro village in Imphal east District, Manipur (India).

7. *Hedychium coronarium* Koenig ex Retz.

8. *Brassica campestris* Linn. var. *sarson* Prain

9. O*cimum americanum* Linn.

10. *Justicia adhatoda* Linn.

11. *Curcuma longa* Linn.

12. *Ipomoea batatas* (Linn.) L

Figure 5. Continued…..

For the treatment of fever, the use of above ground plant parts was higher (21 species) than the underground parts (7 species). Leaves were used in the majority of the cases (12 species) shows in Figure 5, followed by rhizomes (4 species), whole plant and fruits (3 species each), inflorescence, bulbs, seeds and tender shoots (2 species each). Tuber and wood are represented by 1 species each (Figure 3).

Regarding the preparation method (fresh and dry) and mode of application of used medicinal plants (Figure 4); it was found that 65.5% of the species are used for oral consumption while the remaining 34.5% of the species were used externally. When compared with other ethnic groups in India, the ethnic community of Andro used maximum number of plant species for the treatment of fever (Singh and Jain, 2003). Further research is necessary to ascertain the exact number of plants being used by this scheduled caste community along with the exact methods of treatment.

ACKNOWLEDGEMENT

The authors are thankful to the Local Medical Practitioners of Andro Village in particular and the people of Andro in general for their kind cooperation during the many field trips.

REFERENCES

Brummit R. K. and Powell C.E. (1992). Authors of Plant Names. Royal Botanic Gardens, Kew (England).

Devi A. R., Devi Y. M., Singh T. T. and Sharma H. M. (2013). A preliminary survey of the medicinal plants used by the scheduled caste community of Khurkhul in Imphal West District (Manipur) In: E. J. Singh *et al* (ed.) *Plant Diversity Resources of Indo-Burma Biodiversity Hotspot and their Conservation.* D.M. College of Science, Imphal. Pp. 187-197.

Jain S.K. (1987). A Manual of Ethnobotany. Scientific Publishers, Jodhpur (India).

Jain S.K. and Mudgal V. (1999). A Hand Book of Ethnobotany. Bishen Singh and Mahendra Pal Singh, Dehradun (India).

Martin G.J. (1994). Ethnobotany-A Methods Manual. Chapman and Hall, London.

Pei S.J. (2001). Ethnobotanical approaches of traditional medicine studies: Some experiences from Asia. *Pharmaceutical Biology* 39:74-79.

Rinne E. (2001). Water and Healing - Experiences from the Traditional Healers in Ile-Ife, Nigeria. *Nordic J. African Studies.* 10:41-65.

Sharma B. M., Sharma, H. M. and Devi A.R. (2003,a). Ethnomedicinal uses of plants by the Manipuris (Meiteis) of Manipur. In: Singh, V.K. *et al* (ed.). *Recent Progress in Medicinal Plants.* 7. *Ethnomedicine and Pharmacognosy II*. Studium Press LLC, Texas (Houston), USA. Pp. 523-541.

Sharma H. M., Devi A.R. and Sharma B.M. (2003,b). Ethnomedicinal uses of monocotyledonous plants by the Meiteis of Manipur. In: Singh, V. and Jain, A.P. (ed.) *Ethnobotany and Medicinal plants of India and Nepal.* Scientific Publishers, Jodhpur. Pp. 473- 480.

Singh H.B., Singh R.S. and Sandhu J.S. (2003). Herbal Medicine of Manipur. A Colour Encyclopedia. Daya Publishing House, New Delhi.

Singh K.K., Das K.C. and Lalruatsanga, H. (2013). Bioresources and Traditional Knowledge of Northeast India. Mizo Post Graduate Science Society, Aizwal (India).

Sinha S.C. (1996). Medicinal Plants of Manipur. Sinha and MASS Publication, Imphal, Manipur (India).

Trivedi P.C. and Sharma N.K. (2004). Ethnomedicinal Plants. Pointer Publishers, Jaipur (India).

