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

Th. Tomba Singh,¹ A. Radhappay Devi², H. Rajanikanta Sharma³ and H. Manoranjana Sharma⁴
¹Department of Botany, Himalayan University Naharlagun, Itanagar (Arunachal Pradesh), India
²P.G. Department of Botany, D.M. College of Science, Imphal-795001(India)
³Indian Institute of Science Education and Research (IISER), Mohali (Punjab)-160055 (India)
⁴Department of Botany, Thoubal College, Thoubal (Manipur)-795138 (India)

ABSTRACT
The present ethnobotanical study was carried out at Andro Village in Imphal East District (Manipur) in the remote North-Eastern corner of India. The Andro village is located at the intersection of 94°0.2’E longitude and 24°44’N latitude. It has an area of about 4.0 km². The total population of Andro is 8316. The word Andro is derived from the word ‘Handro’ meaning return back after a long separation. The Andro Village is inhabited by a scheduled caste community known as ‘Lois’. The scheduled caste people of Andro Village have a very good knowledge about the treatment of various diseases and ailments with plants. Every elderly people of Andro have common knowledge and easy cure for many common ailments and most of the elderly people uses and prepare different types of medicines from different plant parts. The present study reveals that 104 plants species belonging to 88 genera and 52 families were found to be used by the people of this community as ethnomedicine. Out of this, 42 species are found to be used in the treatment of various skin diseases (including allergy and skin infection) by this community. Some of the species are Acacia farnesiana (L.) Willd., Alpinia galanga (L.) Swartz, Arundo donax L., Azadirachta indica A. Juss., Bauhinia acuminata L., Capparis tenera Dalzell, Cucurma angustifolia Roxb., Cyperus rotundus L., Dactyloctenium aegyptium (L.) Willd., Hedychium coronarium J. Koenig, Jasminum multiflorum (Burm.f.) Andrews, Jatropha curcas L., Justicia adhatoda L., Laportea interrupta (L.) Chew, Mimosa pudica L., Nicotiana plumbaginifolia Viv., Vitex negundo L., Xylosma longifolium Clos and Zingiber montanum (J. Koenig) Link ex A. Dietr.

KEY WORDS: Andro, Scheduled Caste Community, Skin diseases.

INTRODUCTION
The use of plants and animals as source of medicine and food is as old as humanity. The therapeutic hints from remote mists of time hold key of the treasures of medical knowledge. 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 (Pei, 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 (Rinne, 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.

MATERIALS AND METHODS
Study area
The present study site Andro village is located at the foothills of the Baruni (Nongmaiiching) 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. Andro village is one of the oldest villages in Manipur. The exact location...
of Andro village is at the intersection of 94°2'E longitude and 24°44’N latitude. The elevation of Andro is about 783m above the mean sea level. It has an area of about 4.0 km². 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.

Ethnomedicinal study of plant species
The paper is based on the data collected on ethnomedicinal practices among the people of Andro Village during January 2013 to December, 2014. For the present study all the 13 localities under Andro village have been exhaustively investigated ethnobotanically using standard methods for the collection of ethnomedical informations (Jain and Goel, 1987; Jain and Mudgal, 1999; Jain and Rao, 1977; Kapoor and Mitra, 1987; Martin, 1994 and Anonymous, 1984). Three 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 skin diseases.

RESULTS AND DISCUSSION
In the present enumeration each botanical name is followed by its family, local name (Manipuri), and common English names if any, part or parts used in the preparation and method of preparation and mode of use. The specimens were identified by using standard local floras Manipur (Deb 1961a,b; Sinha 1996; Singh et al. 2000) and matched with the herbarium specimens of Assam at Kanjilal Herbarium (Shillong). Efforts have also been made to find out the correct botanical names in accordance with the latest International Code of Nomenclature (ICN) 2012. For nomenclatural updates names in author citation www.theplantlist.org and www.ipni.org was used all the time. The correct authors’ names have also been given as per Authors of Plant Names of Royal Botanic Garden, Kew (Brummit and Powell,1992). Colour photographs were also taken for most of the species and herbariums were also prepared for the collected specimens and the same have been deposited in the Botany Department of Thoubal College, Thoubal (Manipur), India for future use. Prior Informed Consent (PIC) was obtained from the people of Andro village.

Acacia farnesiana (L.) Willd.  
Family: Leguminosae.  
Local name: Chingonglei hangampal.  
Parts used: Leaves.  
Mode of use: Decoction of the leaves is used in skin infections.

Alpinia galanga (L.) Swartz.  
Family: Zingiberaceae.  
Local name: Kanghu.  
Parts used: Rhizomes.  
Mode of use: Crushed rhizome is applied on various fungal infections of the skin. Fresh smashed rhizome is rubbed on ring worms and other skin diseases.

Arundo donax L.  
Family: Poaceae.  
Local name: Yengthou.  
Parts used: Tender shoots.  
Mode of use: The tender shoot is boiled along with the leaves of Azadirachta indica A. Juss. (Local name: Nim; Family: Meliaceae) and Bambusa tulda Roxb. (Local name: Ootang-wa; Family: Poaceae) and the extract so obtained is applied in scabies and other skin infections.
Azadirachta indica A.Juss.  
Syn. Melia azadirachta L.  
Local name: Nim.  
Parts used: Leaves.  
Mode of use: Tender leaves are applied skin diseases like scabies and leprosy in the form of a poultice. Taking bath in the decoction of the leaves will cure many skin diseases.

Bauhinia acuminata L.  
Local name: Chingthrao angouba.  
Parts used: Stem bark.  
Mode of use: Decoction of bark is used in various skin infections like scabies, itches, boils etc.

Capparis tenera Dalzell  
Syn. C. tetrasperma Thwaites  
Local name: Kakyel khujin.  
Parts used: Leaves.  
Mode of use: Leaves are boiled for a long time and the extract when used in bathing helps in curing many skin diseases like itches, scabies etc.

Capsicum annuum L.  
Local name: Morok.  
Parts used: Leaves.  
Mode of use: The leaves are crushed along with the leaves of Nicotiana plumbaginifolia Viv. (Local name: Lam hidakmana; Family: Solanaceae) and the extract is mixed with local made wine and applied in ringworms and other skin infections.

Curcuma angustifolia Roxb.  
Local name: Yaipal.  
Parts used: Rhizomes.  
Mode of use: The paste made by crushed rhizomes along with those of Curcuma caesia Roxb. (Local name: Yaimu; Family: Zingiberaceae) when applied on the skin is believed to cure various skin infections.

Curcuma longa L.  
Syn. C. domestica Valeton  
Local name: Yaingang.  
Parts used: Rhizomes.  
Mode of use: Fresh extract of the rhizomes is mixed with sesame oil and applied against scabies and other skin infections.

Cyperus rotundus L.  
Syn. C. comosus Sm.  
Local name: Sembang Kaothum.  
Parts used: Tubers.  
Mode of use: The crushed tuber is used to cure skin diseases by this community.

Dactyloctenium aegyptium (L.) Willd.  
Syn. Eleusine aegyptia (L.) Desf.  
Local name: Pungphai.  
Parts used: Whole aerial plant.
Mode of use: The whole aerial plant is boiled with the leaves of *Toona ciliata* M. Roem. (Local name: Tairen; Family: Meliaceae), whole aerial plant of *Setaria pumila* (Poir.) Roem. & Schult. (Family: Poaceae), *Eupatorium cannabinum* L. (Local name: Langthrei; Family: Compositae) and *Phragmites karka* (Retz.) Trin. ex Steud. (Local name: Tou; Family: Poaceae) and the decoction is used as bath in various skin diseases including allergy.

**Drymaria cordata** subsp. **diandra (Blume) J.A. Duke**

*Syn. D. diandra* Blume

Family: Caryophyllaceae.

Local name: Tandan pambi.

Parts used: Whole aerial plant.

Mode of use: Whole aerial portion of the plant is used as poultice to cure many fungal diseases of the skin including scabies and ringworms.

**Emilia sonchifolia** (L.) DC. ex DC.

*Syn. Emilia javanica* (Burm.f.) C.B. Rob.

Family: Asteraceae.

Local name: Tera paibi macha /Kharbon.

Parts used: Leaves.

Mode of use: The crushed extract of the leaves is applied externally against skin diseases.

**Ficus religiosa** L.

*Syn. F. peepul* Griff.

Family: Moraceae.

Local name: Sana khongnang.

Common name: Bo tree.

Parts used: Leaves.

Mode of use: Decoction of leaves and young shoots are useful in curing different skin diseases.

**Hedychium coronarium** J. Koenig

*Syn. H. chrysoleucum* Hook.

Family: Zingiberaceae.

Local name: Takhellei angouba.

Common name: Ginger lily.

Parts used: Rhizomes.

Mode of use: Decoction of the rhizome is applied externally against skin disease.

**Ipomoea aquatica** Forssk.

*Syn. I. reptans* Poir.

Family: Convolvulaceae.

Local name: Kolamni.

Common name: Swamp cabbage.

Parts used: Whole aerial plant.

Mode of use: The fresh juice extracted from the whole plant is applied on ringworms, pimples, joint pains etc.

**Isoetes debii** Sinha

Family: Isoetaceae.

Local name: Shorbol.

Common name: Quillwort.

Parts used: Leaves and rhizomorph.

Mode of use: The rhizomorph is used for many fungal skin infections. Poultice made from a mixture of the rhizomes of this plant along with the leaves *Azadirachta indica* A. Juss. (Local name: Nim; Family: Meliaceae) and leaves of *Elsholtzia blanda* (Benth.) Benth. (Local name: Kanghuman; Family: Lamiaceae) is applied in various skin infections.

**Jasminum multiflorum** (Burm.f.) Andrews

*Syn. J. pubescens* (Retz.) Willd.

Family: Oleaceae.

Local name: Kundo.

Common name: Dawny jasmine.
Parts used: Leaves.
Mode of use: Leaf paste is used in rheumatic pain, skin sores, allergy, itches, inflammation etc.

**Jatropha curcas L.**
Family: Euphorbiaceae.  
Local name: Awa kege.  
Parts used: Latex and seeds.
Mode of use: The latex of the plant is applied on boils, scabies, skin sores, and other cuticular infections. Seed oil mixed with mustard oil is used as massage in skin infections.

**Juglans regia L.**
Syn. *J. regia* var. *kamaonia* C. DC.  
Family: Juglandaceae.  
Local name: Heijuga.  
Parts used: Leaves.  
Mode of use: Fungal infection of the skin can be cured by the application of fresh leaf extract.

**Justicia adhatoda L.**
Syn. *Adhatoda vasica* Nees  
*Adhatoda zeylanica* Medik.  
Family: Acanthaceae.  
Local name: Nongmangkha angouba.  
Parts used: Leaves and stem bark.  
Mode of use: The leaf and the stem bark are boiled together for a very long period and the decoction when used in bathing will cure many skin diseases.

**Laportea interrupta (L.) Chew**
Syn. *Urtica interrupta* L.  
Family: Urticaceae.  
Local name: Santhak.  
Parts used: Leaves.  
Mode of use: Leaves of *Nicotiana tabacum* L. (Local name: Hidak mana) is soaked in water for at least ten days and the filtrate is mixed with the paste formed by crushing the leaves of *Laportea interrupta* (L.) Chew and the mixture is applied against many kinds of skin diseases.

**Lithocarpus elegans** (Blume) Hatus. ex Soepadmo  
Syn. *Quercus spicata* Smith var. *colletti* King ex Hook.f.  
Family: Fagaceae.  
Local name: Kuhi.  
Parts used: Stem bark.  
Mode of use: Decoction of the bark is prescribed in various skin infections and scabies.

**Lycopersicon esculentum Mill.**
Syn. *L. humboldtii* (Willd.) Dunal  
Family: Solanaceae.  
Local name: Khamen ashinba.  
Parts used: Leaves.  
Mode of use: The crushed leaf paste is rubbed on the body to remove etching, irritation and other skin infections.

**Mimosa pudica L.**
Syn. *Mimosa hispidula* Kunth  
Family: Mimosaceae.  
Local name: Kangphal ekaithabi.  
Parts used: Whole aerial plant.
Mode of use: The whole aerial plant is mixed with the leaves of *Eucalyptus globulus* Labill. (Local name: Nasik; Family: Myrtaceae) and boiled for a long time and the decoction is used in skin diseases like scabies, pimples etc.

*Nicotiana plumbaginifolia* Viv.  
Syn. *N. tenella* Cav.  
Family: Solanaceae. Local name: Meitei hidak mana.  
Parts used: Leaves.  
Mode of use: A mixture of the dried leaves along with those of *Azadirachta indica* A. Juss. (Local name: Nim; Family: Meliaceae) are roasted together in a closed container. It is applied against skin diseases like ringworms after mixing the leaf with Kalei (local made pure wine).

*Santalum album* L.  
Syn. *Sirium myrtifolium* L.  
Family: Santalaceae.  
Local name: Cha chandan.  
Parts used: Wood.  
Mode of use: Pieces of the wood are boiled for 3 to 4 hours and the extract when used in bathing cures many skin diseases.

*Setaria pumila* (Poir.) Roem. & Schult.  
Syn. *Setaria glauca* var. *pumila* (Poir.) Hegi  
Family: Poaceae.  
Local name: Hup.  
Parts used: Whole aerial plant.  
Mode of use: The whole aerial plant is boiled along with the leaves of *Malvastrum coromandelianum* (L.) Garcke (Family: Malvaceae) and *Sida cordata* (Burm. f.) Borss. Waalk. (Local name: Uhan; Family: Malvaceae) and the hot extract is used to cure skin allergy and other skin diseases. The whole plant is boiled along with the leaves of *Eupatorium cannabinum* L. (Local name: Langthrei; Family: Compositae), *Toona ciliata* M. Roem. (Local name: Tairen; Family: Meliaceae), and *Phragmites karka* (Retz.) Trin. ex Steud. (Local name: Tou; Family: Poaceae) and the decoction is used as bath in various skin diseases including allergy.

*Tagetes erecta* L.  
Syn. *T. patula* L.  
Family: Compositae.  
Local name: Sanarei.  
Common name: French marigold.  
Parts used: Young shoots and leaves.  
Mode of use: It is also one of the most commonly used plants by the scheduled caste community of Andro. In the early morning and evening, peoples working in the fields (mostly paddy fields) suffered from different types of insect bites and working is very much disturbed. Fresh shoot tips or leaves of this plant is crushed in between two palms and after mixing with a little kerosene oil or tobacco leaves, the mixture is smeared on the body or placed on the ear, it will totally protect from insects and allergies.

*Vitex negundo* L.  
Syn. *Vitex laciniata* Schauer  
Family: Lamiaceae.  
Local name: Urik shibi.  
Common name: Chinese chaste tree.  
Parts used: Leaves.  
Mode of use: The leaves are boiled together with those of *Azadirachta indica* A. Juss. (Local name: Nim; Family: Meliaceae) for a long period until well cooked. The decoction when used in bath while hot will cure various types of skin infections. This is a very common practiced used by this community against skin infections.
Ipomoea aquatica Forssk.

Acacia farnesiana (L.) Willd.

Curcuma longa L.

Bauhinia acuminata L.

Jasminum multiflorum (Burm.f.) Andrews

Alpinia galanga (L.) Swartz
Mimosa pudica L.

Vitex negundo L.

Azadirachta indica A.Juss.

Xylosma longifolium Clos

Curcuma caesia Roxb.

Drymaria cordata subsp. diandra (Blume) J.A. Duke
Xylosma longifolium Clos
  Syn. X. congesta var. kwangtungensis F.P. Metcalf  
  Local name: Nongleishang.  
  Family: Salicaceae.  
  Parts used: Leaves.  
  Mode of use: The decoction of the leaves alone or mixed with the leaves of Azadirachta indica A. Juss. (Local name: Nim; Family: Meliaceae) are used in the treatment of various skin diseases in the form of taking hot bath in the decoction for 10 to 15 minutes.

Zingiber montanum (J.Koenig) Link ex A. Dietr.  
  Syn. Zingiber purpureum Rosc.  
  Local name: Tekhao yaikhu.  
  Parts used: Rhizomes.  
  Mode of use: Paste of the rhizome is used in curing in skin diseases.

DISCUSSION
The present study reveals that 42 plant species were found to be used by the scheduled caste community of Andro in the treatment of various skin diseases. These 42 plant species (1 pteridophyte, 12 monocotyledons and 29 dicotyledons) belongs to 39 genera which are distributed over 22 families (1 pteridophyte, 3 monocot and 18 dicots). The families Zingiberaceae (6), Poaceae (5), Solanaceae (5), Compositae (3) and Leguminosae (3), Lamiaceae (2), Malvaceae (2), and Meliaceae (2) have contributed maximum number of species in the treatment of skin diseases. The Remaining 14 families have only 1 species each used in the treatment of various skin diseases (Figure 1).

Out of the 42 species recorded, 26 species are herbaceous plants, 5 shrubs and 11 trees (figure 2). For the treatment of skin diseases, the use of above ground plant parts was higher (83.33%) than the underground parts (16.67%). Leaves were used in the majority of the cases (54.35%), followed by rhizomes (13.04%), whole aerial plant (10.87%), stem barks (6.52%) and tender shoots (4.35%). rhizomorph, tubers, wood, latex and seeds have an equal percentage value of 2.17% each (Figure 3).

Fig. 1: Family wise contribution to the total species

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CONCLUSION
The present study documented the traditional uses of medicinal plants, their ecological status and importance of these plants in the Andro village of Manipur. This study can serve as baseline information on medicinal plants and could be helpful to further strengthen the conservation of this important resource. 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.

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