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# Diversity of Antipyretic plants in Mizoram, Northeast India

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**Abstract:** ***A study of antipyretic plants was made in the state of Mizoram. After the study a total of 25 families were identified from 35 species. It also provides information about the diversity of antipyretic plants in the state. Conservation of antipyretic plants is essential for the future.***

**Keywords:** Diversity, Antipyretic, Plants, Mizoram, Northeast India.

## 1. Introduction

Fever occurs due to the infection by virus, bacteria, protozoa and other microorganism that produce pyrogen. These pyrogen act on WBC which in turn produce endogenous toxins, they act on the anterior hypothalamus and the body temperature is elevated above 99◦ F causing fever (Chatterjee 1973). Fever leads to the disturbance in human physiology (Axelrod and Diringer, 2008) metabolism, increase blood pressure, pulse rate, cardiac output, respiration, liver cell damage, cold, cough in our body.

Healthcare and traditional system of medicine are used throughout the world and from centuries have been the original source for most of the drugs (Maurya and Srivastava, 2011). World health organization(WHO) has estimated more than 4000 million people of the world dependent on traditional medicines (Farnsworth *et al.,* 1985). India has centuries old rich heritage of medicinal plant due to diversity in environment for curing human illness. Mizoram (extended between latitude 21◦ 58'– 24◦ 35' N and 92◦ 15' to 93◦ 29' E longitude) is a state in Northeast India and a part of Indo-Burma hotspot of the world. The unique position in the region rich plant diversity due to mountain terrain, altitudinal variation, topographical features, soil charecteristics, climatic factors favours the luxurious growth of plants.

Herbal antipyretic plants used from time immemorial and are favoured over the chemical ones for their compatibility to the human physiological system,easy availability, rich knowledge about the traditional healing system ( Sharma *et al.,* 2010 ). The antipyretic plants are used to eliminate fever (Chettri, 2009) and due to various reasons people are going back to herbal medicine (Graze *et al.,* 2011).

Less attention has been given by the ethnobotanists for exploring the ethnomedicinal diversity of antipyretic plants so this study was done to explore about the antipyretic plants in the region.

## 2. Material and Methods

The study area confined to the state of Mizoram, Northeast India and the region is inhabitated by different ethnic groups. Regular field trips to different areas of the state was conducted between December, 2013 to January, 2014 covering all seasons and antipyretic plants were collected actively used by the local people. The information on the ethnobotanical uses was gathered from ethnic groups and recorded from the local healers, village old man, women using semi-structured questionaires. The collected plant with local name were identified with the help of flora (Hooker, 1975 and Kanjilal *et al.,* 1984 ) and standard literatures.

## 3. Result and Discussion

The study depict the great diversity of antipyretic plants in the region found a total of 35 plant species, distributed among 25 families were identified and documented. The dominant family with the largest number of three species belonged to Asteraceae, Piperaceae followed by Acanthaceae, Meliaceae, Malvaceae, Rutaceae, Verbenaceae and Zingiberaceae with two species each Apiaceae, Apocyanaceae, Cucurbitaceae, Cyperaceae, Labiateae, Liliaceae, Magnoliaceae, Menispermaceae, Mimosaceae, Myrsinaceae, Musaceae, Plantiginaceae, Rosaceae, Rubiaceae, Saxifragnaceae, Solanaceae, Umbelliferae with one species each (Table 1, Figure 1). The status on the habit of the antipyretic plants depict the dominant species herbs followed by trees,shrubs and climbers as such herb (12 species) 34%, tree (11 species) 32%, shrub (6 species) 17% and climber (6 species) 17% (Table 1,Figure 2).

The study on the plant part(s) used for the procurement of the ingredient show that the most preferred form of use is leaf (11 species) 28%, followed by root (8 species) 20%, fruit (5 species) 13%, whole plant (4 species) 10%, bark (4 species) 10%, stem (2 species) 5%, rhizome (2 species) 5%, bulb (1 species) 3%, flower (1 species) 3% and seed (1 species) 3% (Table 1,Figure 3). The ethnobotanical usage that is method of formulation of crude drug preparationis concerned show that the most preferred form of use is decoction (23 species) 64%, fresh (5 species) 14%, infusion (3 species) 8%, powder (3 species) 8% and paste (2species) 6% (Table 1,Figure 4).

## 4. Conclusion

The study revealed that the ethnic peoples of study area used traditional medicinal plants for treatment of fever. The world is witnessing the resurgence of herbal system of medicine. The ethnomedicinal plants having antipyretic activity should be subjected to clinial investigation Proper regulatory mechanism is recommended to ensure safety and efficacy of

herbal product. The herbal heritage must be protected for future which may ultimatey lead to the development of new molecule for human health as well as national economy. There is an urgent need to formulate suitable strategies for conservation of these ethnobotanical heritage by domestication and cultivation.

## 5. Acknowledgement

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**Table 1:** Antipyretic plants with local name,family,habit,part(s) used and ethnobotanical usage

| Botanical name | Local name | Family | Habit | Part(s) used | Ethnobotanical usage |
|---|---|---|---|---|---|
| *Adhatoda vasica* Nees | Kawldawi | Acanthaceae | Shrub | Leaf/root | Decoction |
| *Ageratum conyzoides* L. | Vailenhlo | Asteraceae | Herb | Stem | Decoction |
| *Allium sativum* L. | Purunvar | Liliaceaa | Herb | Bulb | Fresh |
| Alstonia scholaris R.B. | Thuamriat | Apocyanaceae | Tree | Bark | Infusion |
| Andrographis paniculata Nees. | Hnakhuapui | Acanthaceae | Herb | Whole plant | Decoction |
| Ardisia colorata Roxb. | Hnuthlum | Myrsinaceae | Tree | Bark | Decoction |
| Artemisia indica Wild. | Sai | Asteraceae | Shrub | Leaf | Paste |
| Azadirchta indica A.Juss. | Nimthing | Meliaceae | Tree | Leaf | Decoction |
| Bergenia ligulata (Wall) Engl. | Pandamdawi | Saxifragaceae | Herb | Root | Decoction |
| Centella asiatica (L.) Urban | Hnabial | Umbelliferae | Herb | Whole plant | Decoction |
| Chukrassia tabulsris A.Juss | Zawngtei | Meliaceae | Tree | Fruit | Decoction |
| Citrus sinensis L. | Serthlum | Rutaceae | Tree | Leaf | Decoction |
| Clerodendron serratum Spreng | Phuhnamsreh | Verbenaceae | Shrub | Root | Decoction |
| Cucurma longa L. | Aieng | Zingiberaceae | Herb | Rhizome | Decoction |
| Gossypium arboreum L. | La | Malvaceae | Shrub | Root | Decoction |
| Hedyotis scadeus Roxb. | Laikingtuibur | Rubiaceae | Shrub | Root/Leaf | Decoction |
| Hydrocotyle javonica Thub. | Hlovaidawr | Apiaceae | Herb | Whole plant | Decoction |
| Kyllinge monocephala Roxb. | Artelubawk | Cyperaceae | Herb | Root | Decoction |
| Michella champaca L. | Nghau | Magnoliaceae | Tree | Flower/Fruit | Decoction |
| Mikania micrantha Kunth. | Japanhlo | Asteraceae | Climber | Leaf | Decoction |
| Momordica charantia L. | Changkha | Cucurbitaceae | Climber | Leaf | Fresh |
| Musa superba Roxb. | Tumbu | Musaceae | Tree | Fruit | Decoction |
| Ocimum sanctum L. | Lalram | Labiatae | Herb | Leaf | Fresh |
| Parkia roxburghii D.Don | Zawngtah | Mimosaceae | Tree | Root | Decoction |
| Piper beetle L. | Panruang | Piperaceae | Climber | Leaf | Fresh |
| Piper longum L. | Vokohuli | Piperaceae | Climber | Fruit | Infusion |
| Piper nigrum L. | Thinghmarcha | Piperaceae | Climber | Fruit | Powder |
| Plantago major L. | Kelbaan | Plantiginaceae | Herb | Whole plant | Decoction |
| Prunus cerasoides D.Don | Tlaizawng | Rosaceae | Tree | Bark | Decoction |
| Solanum violaceum L. | Samtawk | Solanaceae | Herb | Root | Decoction |
| Tinospora sinensis (Lour.)Merr. | Vankaihrul | Menispermaceae | Climber | Stem | Infusion |
| Urena lobata L. | Schnnep | Malvaceae | Shrub | Leaf | Decoction |
| Vitex peduncularis Wall ex Schauer | Thingkikawila | Verbenaceae | Tree | Leaf/Bark | Paste/Powder |
| Zanthoxylum armatum Roxb. | Arhikveh | Rutaceae | Tree | Seed | Powder |
| Zingiber officinale Rosc. | Sawhthing | Zingiberaceae | Herb | Rhizome | Fresh |

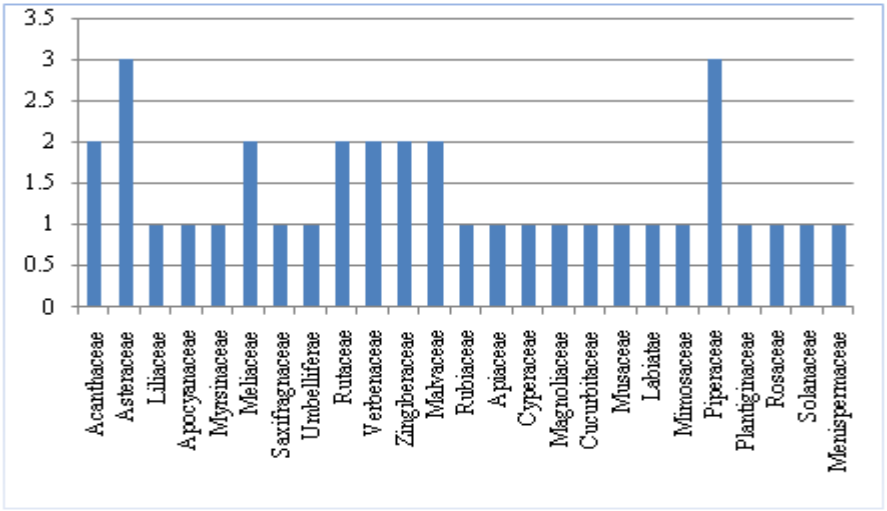


**Figure 1:** Family wise distribution of plants

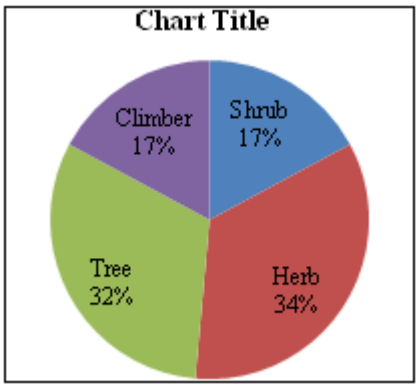


**Figure 2:** Habit of the plants with percentage

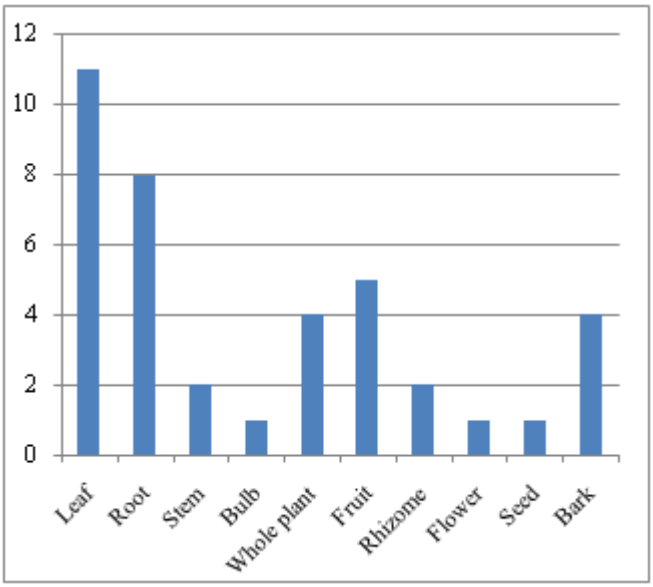


**Figure 3:** Number of different plant parts used

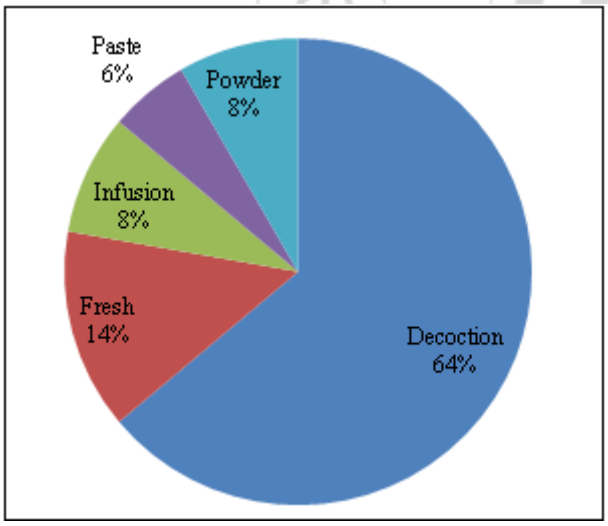


**Figure 4:** Ethnobotanical usage with percentage

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