*Pleione* 7(2): 469 - 472. 2013. **ISSN: 0973-9467**


# Traditional Tai-Khampti medicinal plants to cure fractured bones

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[Received 12.04.2013; accepted 14.12.2013]

**Abstract**

This paper tries to document the traditional wealth of medicinal plants used to cure the fractured bones by the Khampti tribe of Arunachal Pradesh. The Tai-khampti have settled themselves in the Eastern circle, under Lohit district of Arunachal Pradesh covering mainly three circles-Chongkham, Namsai & Piyong, while some of them are found to have made their homes in the neighboring Assam State. They are mainly famous as traditional herbal doctors. The usage of wild plants with the right day of their calendar along with their enchantments adds to the fast recovery. The plant parts used varies from different plant healers to healers. Some use the above parts while some use the below parts. Thus, the present paper documented 23 medicinal plants which are important ingredient to cure the fractured bones of the patients. These traditional medicinal plant species were distributed across 13 families and 21 genera. Asclepidiaceae, Zingiberaceae and Vitaceae were the most dominant family with 3 genera and 3 species of medicinal plants each from the respective families. The other families in the race were Chloranthaceae, Taccaceae and Araceae, followed by Caprifoliaceae, Plumbaginaceae, Rubiaceae, Bignoniaceae, Orchidaceae, Arecacea, Cyperaceae and Aspleniaceae.

***Key words***: Khamti tribe, Traditional healers, Ethnomedicinal plants, Bone fracture, Arunachal Pradesh

## INTRODUCTION

Traditional herbal therapy is an age old practice (Rawat & Chaudhury 1998). This has cured varied diseases in the past and is still a favorite way out for the indigenous tribe. In fact, the traditional healing practices are arousing curiosity among various researches from all round the professions to go in depth into this subject (Tag *et al* 2005). Ancient traditional treatment methodology earns fame from its ethnic tribes, who still believe that traditional methods of application in curing many incurable diseases where modern medicine definite limitations. For the forest dwelling groups, age old practice of application plant-drugs for bone fracture, jaundice, pneumonia, diabetes, etc are still in demand to their modern counter pant (i.e. allopathic/ modern medicine). The local made herbal treatments along with enchantment for fast recovery by their local doctors are more sought after by the local tribes (Kala 2005).

### Khampti tribe:

The Khampti tribe gains its name from the "Tai long" which means inhabitant from the land of gold. They speak 'Tai Khampti' language and have their own script called as 'Lik Tai'. In fact, this is the lone tribe in the Arunachal Pradesh to have their own script. Khamptis are peace loving tribe and follow Hinayana sect of Buddhism. They believe in Nirvana. Their main festival is water festival which is known as "Sangken." They are agriculturist by nature

and grow various kinds of vegetables to meet their daily consumption. They practice wet rice cultivation and also have taken up cash cropping. They are now having small and large Tea, Rubber, Zinger, Orange and Cardamom gardens. This new adaptation is adding to their revenue growth(Anonymous 2004).The study was taken up for documentation and analyzing the traditional knowledge of the Khampti tribe of Arunachal Pradesh who are known for having vast knowledge regarding the herbal practices in curing different kinds of diseases. Here, the paper tries to bring out the use of varied plants in the treatment of bone fracture by the Khampti tribe of Arunachal Pradesh.

**Study area:**

The Khampti dominated area lies within the geographical range of 96º 13' and 96º 50' E longitudes and 27º 48' and 27º 53' N latitudes in Lohit District of Arunachal Pradesh. The topography is low lying to plains and located at the elevation of 150 – 200 m amsl. The rainfall varies from 750 mm to 850 mm during summer (May – August) with relative humidity remains between 80 – 85 %. The temperature also varies with respect to seasons. While the winter extreme is around 10º C in summer it shoots up to 35º C. The forests are of luxuriant tropical evergreen type and harbor vast array of plants.

## MATERIALS AND METHODS

Extensive and intensive field surveys for ethnomedicinal plants were undertaken in different villages in the Khampti dominated areas under the three forest circles namely, Chongkham, Namsai and Piyong of Lohit District during January 2007 to April 2009. Using Participatory Rural Appraisal (PRA) methods along with frequent interviews with the local villagers and traditional healers were done. The plants in use to cure or resetting the fractured bones were noted and collected as herbaria specimens following Jain & Rao (1997) and identified from the Botanical Survey of India, Itanagar, State Forest Research Institute, Itanagar, North Eastern Regional Institute of Science and Technology, Nirjuli, Rajiv Gandhi University, Itanagar and using Lalramnghinglova (2003). The voucher specimens are deposited in the Herbarium of the Mizoram University.

**Approaching a local doctor (Practitioner)**

Khampti traditional practitioners are locally called as "*Chow Ya*" for males and "*Chow Nang Ya*" for females. To approach one such practitioner, a small bundle wrap with sugar known as "*Phong phak*" along with flowers in a plate is given to them for gaining knowledge with regard to their medicinal expertise for curing diseases. These practitioners then accepted the offer and did the needful for them. While preparing the medicine, they also calculate the right and strong days, such as Tuesday and Saturday of the given week of English calendar. These days of the week are considered as best for any type of preparation or plucking of the medicinal plants from their habitat for best result. They usually depend on the nature for their raw materials though few of them are grown in their herbal kitchen gardens.

## RESULTS AND DISCUSSION

The present survey recorded 23 species of ethno-medicinal plants from the study area and those plants were applied for resetting or curing the fractured bone by the local Tai-khampti practitioners. These traditional medicinal plant species are distributed amongst 13 Families and 21 Genera (Table 1). Asclepiadaceae, Zingiberaceae and Vitaceae were the most dominant with 3 genera and 3 species of medicinal plants from each of these. The other families in the race were Chloranthaceae, Taccaceae and Araceae, followed by Caprifoliaceae, Plumbaginaceae, Rubiaceae, Bignoniaceae, Orchidaceae, Arecaceae, Cyperaceae and Aspleniaceae. The plant parts utilized was both from the above and below ground regions.

**Table 1.** Traditional medicinal plants used against fracture of bones by Khamti tribe

| Botanical name [Family]; Local name; Exsiccate | Plant part used | Use |
|---|---|---|
| ***Alpinia galanga*** (Linnaeus) Willdenow [Zingiberaceae]; *Khing Pang;* 125-SMZU | Rhizome | Powdered rhizome applied on affected part for healing fractured bone |
| ***Ampelocissus barbata*** (Wallich) Planchon [Vitaceae]; *Songra murich;* 256-SMZU | Leaf | Paste of fresh leaf and rhizome of *Zingiber officenale* applied on the swellings to cure pains |
| ***Asplenium nidus*** Linnaeus [Aspleniaceae]; *Ya hang kaa;* 103-SMZU | Leaf | Paste of fresh leaves applied on fracture of bone |
| ***Calamus tenuis*** Roxburgh [Arecaceae]; *Moon khum;* 234-SMZU | Stem, root | Powdered stem and root along with fresh turmeric rhizome are made into paste and applied on fractured bone for proper setting |
| ***Chloranthus elatior*** Link [Chloranthaceae]; *Ya hang;* 324-SMZU | Leaf | Pastes of leaf and that of *Curcuma longa* applied on the swelling part reduces the pain and swelling |
| ***Chloranthus serratus*** (Thunberg) Roemer & Schultes [Chloranthaceae]; *Ya singha;* 189-SMZU | Leaf, root | Paste of fresh leaf and root is tied to the swelling fractured bone for resetting |
| ***Cissus repens*** Lamarck [Vitaceae]; *Panang sai;* 109-SMZU | Leaf, stem | Freshly prepared paste of leaf and stem applied on affected part reset the cracks in bone |
| ***Cryptolepsis dubia*** (Burman *f.*) M.R. Almeida [Asclepiadaceae]; Ya loung; 214-SMZU | Leaf | Leaf paste is the main ingredient mixed with that of *Hemidesmus indicus* & *Euphorbia neriifolia* for curing the fractured bone |
| ***Cyperus corymbosus*** Rottboell [Cyperaceae]; *Ya hoo kann;* 316-SMZU | Stem, root | Paste of root and stem applied on affected bone for fast relief of pain |
| ***Eria pannea*** Lindley [Orchidaceae]; *Seppuk;* 306-SMZU | Leaf | Leaf paste is applied over the broken portion of to get relief from pain and swelling |
| ***Hemidesmus indicus*** Roxburgh [Asclepiadaceae]; *Thot Namche;* 134-SMZU | Leaf, stem | Paste of freshly plucked leaf and stem is applied on the affected part for fast resetting |
| ***Holostemma ada-kodien*** Schultes [Asclepiadaceae]; *Yang puk;* 245-SMZU | Leaf | Leaf paste is applied as antiseptic for wounds at the broken region |
| ***Lasia spinosa*** (Linnaeus) Thwaites [Araceae]; *Siben jeng;* 145-SMZU | Leaf | Leaf paste applied on affected bone for fast relief of pain |
| ***Millingtonia hortensis*** Linnaeus *f.* [Bignoniaceae]; *Heteka;* 116-SMZU | Root | Fresh paste of roots mixed with fresh rhizome of *Zingiber officinale* is used for healing the cracked bone |
| ***Mussaenda roxburghii*** Hooker *f.* [Rubiaceae]; 176-SMZU | Leaf | Mixture of paste of the stem, leaf and rhizome of *Zingiber officinale* binds the broken bones |
| ***Plumbago zeylanica*** Linnaeus [Plumbaginaceae]; *Ya ken;* 156-SMZU | Flower, leaf | Paste of leaf and flower mixed with powdered rhizome of *Zingiber officinale* and *Khaemferia galanga* applied on fractured bone |
| ***Pothos scandens*** Linnaeus [Araceae]; *Phuiya uhang;* 147-SMZU | Stem, leaf | Paste of freshly plucked stem and leaf is wrapped on the affected bone for fast recovery |
| ***Sambucus chinensis*** Lindley [Caprifoliaceae]; *Pyanam;* 111-SMZU | Leaf, stem | Freshly prepared paste of leaf, stem and rhizome of *Curcuma longa* reset the crack in bone |
| ***Stemona tuberosa*** Loureiro [Stemonaceae]; *Ya khung* 208SMZU | Leaf | Paste of freshly plucked leaf helps in binding the fractured bone |
| ***Tacca integrifolia*** Ker Gawler [Taccaceae]; *Mau kyiang;* 225-SMZU | Petiole, lamina | Application of paste of fresh petiole and lamina helps in binding the fractured bone |
| ***Tetrastigma serrulatum*** (Roxburgh) Planchon [ Vitaceae]; *Ya enka;* 145-SMZU | Leaf | Fresh leaf paste used as main component for repairing fractured bones |
| ***Zingiber officinale*** Roscoe [Zingiberaceae]; *Khing;* 178- SMZU | Rhizome | Paste of fresh rhizome mixed with that of *Alpinia galanga* is tied to the swelling bone |
| ***Zingiber zerumbet*** (Linnaeus) Roscoe *ex* Smith [Zingiberaceae]; *Khing misrang;* 145-SMZU | Rhizome | Paste of rhizome applied externally to cure cracks in bones |

The above parts were the young shoots, petioles, leaves, stem, barks and the below ground parts comprises of rhizomes and roots. The percentage shows that the use of above ground parts is of 70 % and the below ground is of 30 %. The traditional practitioners belonging to older generations of age, i.e. of 75 – 85 years is 80 %, 15 % for mid-sixties and 5 % belonging to young generation. From the study it was also found that the inherited knowledge is passed on within a particular family and the traditional healers belong from the older generation rather than the mid-age people. However, this knowledge of ethnomedicinal plant practice is just heard of from the younger population. And this is a concern for the flourishing traditional practices on orthopedics or any other diseases.

The evidence collected from various Tai-Khampti villages and different age groups show immense potential for studying for orthopedic knowledge in the society. However, this traditional knowledge runs within selected few in the villages and is passing over from one generation to the next and not off to other family. Since this is also noticed mainly within the old-age group of people of the society, there is a fear that the genetically inherited ethnomedicinal plant practices are in wage of extinction. Similar view had been observed by Bhuyan (1989). Hence to save this traditional knowledge it is now essential to document such practices in detail. The various wild medicinal plants collected for the application are mostly from their natural habitat and rarely from the third parties like illegal plant dealers. The collectors are not using any systematic methods for collection and thus this will cause over exploitation of the particular medicinal plants and may lead to extinction. In order to conserve the natural resources, proper and sustainable management practices must be adopted and local inhabitants must be made aware about it.

**Acknowledgements**

The authors convey their sincere thanks to the key informants of Khamti tribes for rendering their valuable knowledge during the process of field work. They also thank Scientists of the Botanical Survey of India, State Forest Research Institute, Itanagar and faculty of Botany Department, Rajiv Gandhi University, Arunachal Pradesh and technical staff of the herbarium of Mizoram University Aizawl for identification of plant specimens.

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