

## Ethnomedicinal uses of *Drymaria cordata* (Linnaeus) Willdenow ex Roemer & Schultes (Caryophyllaceae) in the Imphal district of Manipur, India

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### Abstract

The ethnomedicinal importance of *Drymaria cordata* (Linnaeus) Willdenow ex Roemer & Schultes of Caryophyllaceae as practiced by the Meiteis of Imphal East & West districts of Manipur, India along with a comparison of its medicinal uses with earlier publications and highlighting the traditional methods of treating sinusitis and night blindness.

**Key words:** Meiteis, Imphal, Tandan mana, treatment of sinus and essential oil.

### INTRODUCTION

Imphal, the capital city of Manipur is centrally located in a oval shaped valley with an area of 1843 sq km comprising 8.25 % of the total area of the state stretching 57.92 km from North - South to 32.19 km in East - West with a population of 967344 (Anonymous 2011), i.e. 35.54% of the total population of the state dwelling in 354 villages and 10 towns and 4 urban local bodies. The Imphal valley is mainly inhabited by the Meiteis, the major community of the state (Anonymous 2011). The valley is located centrally at 784 m altitude, 24.30° N to 25.04° N Latitude and 93.45° E to 94.15° E longitude (Google Earth.Lnk 2006). It is surrounded by Senapati District on the north, on the east by Thoubal district, on the south by Thoubal and Bishnupur Districts, and on the west by Senapati and Bishnupur Districts. An average annual temperature of 20.4° C and 1320 mm of precipitation with a maximum and minimum humidity of 83 % and 52 % respectively were experienced in the valley (Anonymous 2002). A humid sub-tropical climate with cool and dry winters, a warm summer and a moderate monsoon season is experienced in the valley. Subtropical, tropical wet evergreen and tropical moist deciduous forests also prevails in the valley. Meiteis are having tremendous ethnomedicinal knowledge. They use certain plant species in the treatment of various diseases. One of the most important ethnobotanical plants of Imphal district is *Drymaria cordata* (Linnaeus) Willdenow ex Roemer & Schultes of Caryophyllaceae, locally known as “*Tandan mana*” in Manipuri (Photo 1). In other parts of India it is known as Fuja in Nagaland, Laijabori in Guwahati, and Abhijalo by the Bhutia, Lepcha and Nepalese of Sikkim and Darjeeling Himalaya (Barua *et al* 2009). Hydroethanolic extract (DCHE) of *D. cordata*, can be developed in future as a potent analgesic and anti-nociceptive agent as it contains tannins, diterpenes, triterpenes and steroids present in the DCHE extract (Barua *et al* 2011). It is a trailing herb with slender branches up to 91.44 cm or more long, nodes swollen, glabrous; adventitious roots develop from nodes. Branches axillary, vertical up to 10 cm, vertical branches trails and ramify into matted net. Leaves opposite decussate, short petioled, succulent, rounded-ovate, shallowly cordate. Flowers small, white, in axillary and terminal cymes. The plant is found more in moist, shady areas of the valley such as near ponds, ditches, and wetlands and to a lesser extent near the foot hills.

A single preliminary report was made for the first time on the uses of *Drymaria cordata* in Manipur by Devi (1989) and, accordingly, the boiled plant was useful in diarrhoea of children while the fresh juice of the plant was used in nasal bleeding (Devi 1995.). Another report was made by Ramashankar & Rawat (2008) wrongly as “*Tandama nthi*” in Manipuri.

### METHODOLOGY

Study area was visited mainly in summer and winter (January, May, June, July and December), during 2008 – 2011. Plant specimen were collected and identified with the help of *Flora of Ceylon* (Trimon 1984) and *Flora of Majuli* (Islam 1990). Photographs of the plant were also taken during the field work with Sony Cyber-Shot, 14.1mega-pixel camera. Local people were interviewed on the incidence of sinusitis and the living standard of households. Local traditional

130 Ethnomedicinal uses of *Drymaria cordata* in Manipur  
healers/ herbalists were consulted and interviewed on the uses of *D. cordata* by Meiteis for the treatment of sinusitis and night blindness.

A voucher specimen [Thokchom, Leikai, Imphal East, *Ayam 000205*, dated 04.06.2010] has been deposited in the Herbarium of the Department of Life Sciences, Manipur University.



**Photo 1:** *Drymaria cordata* in its natural habitat

### RESULTS AND DISCUSSION

During the present survey, the following is a new method on the uses of *D. cordata* by the meiteis for treating sinusitis. In this method, fresh leafy shoots were wrapped in seven layers of banana leaves (locally known as *laton tarat*), and tied with a thread and steam cooked in a limited amount of water, by keeping on a separator in pressure cooker/ kettle. After steam cooked, and before cooling down, a small pipe was inserted through a hole made on the wrapped banana leaf and the vaporised essential oil from the free end of the pipe was inhaled by the nose which was blocked due to sinusitis. Treatments of sinusitis to a total number of 100 volunteer patients were conducted giving different doses of treatment i.e. 2 – 3 inhalations per day for 2 - 3 days, one week or two weeks respectively depending on the level of sinusitis.

1. After two to three inhalations (i.e. within 30 secs) all the blockages were relieved temporarily, and for the permanent healing the same frequency of inhaling essential oil were continued for 2 – 3 weeks. A large Number of patients with acute sinusitis had been cured through this practice, without expensive treatment or surgery.
2. 20 out of the 100 sinusitis patients were cured in 3 days with a frequency of 2 – 3 inhalations per day of treatment. In addition, 70 % patients were cured by inhaling in same frequency for one week and the remaining 10 % were also cured within two weeks of the treatment.

During the survey it was found that most of the sinusitis patients belong to poor or middle class families and only a few from the rich families. Poor and middle class families maintain low hygienic conditions with moist or damp house-floors and surroundings. Therefore, living in the moist and damp environment could be the possible reason for the development of their sinusitis

problems. Difference in the duration of treatment required for curing sinusitis patients could be due to difference in severity of occurrence of sinusitis. The more severe the sinusitis; longer duration of treatment is essential. Earlier reports on the uses of *D. cordata* also do not include its use as vegetable, and method of treatments (traditional protocol of sinusitis treatment) of sinusitis, and night blindness. *Drymaria cordata* were consumed cooked to cure “night blindness” by the Meiteis of Manipur. The Meiteis follow the following mode of cooking of *D. cordata*:

At first a little amount of chopped *Allium hookeri* leaves were fried; then some amount of chopped *D. cordata* (whole plant except roots) was boiled in water, or both are boiled together in water without frying. Some amount of grounded or crushed rhizome of *Zingiber officinale* were added to the mix. To improve the flavour, salt and green chillies are also added. Therefore, this could be the new report from Manipur on the method of use of *D. cordata* for the treatment of sinusitis, night blindness and for using it as vegetable. *Drymaria cordata* was also used to relieve from muscular cramps, and it was believed to possess certain essential oil (terpenoids) responsible for the medicinal properties. But when excess of the plant extract is applied continuously for a longer period (i.e. more than 5 hrs), it causes prickly/burning sensation and swelling of the underlying tissues which may also be due to the strong essential oil present in the plant.

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