

Ethnobotany and socio-economic importance of some Moraceous species in Arunachal Pradesh, India



Botany

KEYWORDS : Ethnobotany, socio-economic, Moraceae, Arunachal Pradesh.

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ABSTRACT

The paper discusses the Ethnobotany and utilization pattern of some Moraceous species of Arunachal Pradesh, India. The present study revealed the strong socio-cultural relationships of community with the species of Moraceae and the species are commonly used by the tribal communities for different purposes. They use it mostly as food, timber, fuelwood, medicine, fodder etc. The species wise uses as per the present botanical study are summarized below with the local name of species, parts use and pattern of uses. Total 20 recorded species are known so far for their various uses like wild edible, fodder, wild vegetable, timber and medicine etc.

INTRODUCTION

Arunachal Pradesh is the largest state of Northeastern region and comprises major part of the Eastern Himalaya with an area of 83,743 square km. It is situated between 26° 30' to 29° 30' North latitude and 91°30' E 97° 30' to E longitude and comprises major parts of Eastern Himalaya. The total forest cover is about 67,410 square km accounting for 80.50% of total geographical area (FSI, 2011). The state by virtue of its geographical position, climatic condition and altitudinal variation, is a biodiversity rich region in Northeast India with large tracts of tropical, sub tropical, temperate and alpine forests showing a rich floristic diversity with 4,117 species of flowering plants (Hajra & Mudgal, 1997). The state comprises about 26 major tribes and 110 sub tribes are rich in community. The ethnic people in the state have a rich traditional uses of different parts of the plant species for various purposes including health care and other livelihood products (Doley et al, 2010). The major tribes includes Nyshi, Adi, Wancho, Mishmi, Monpa, Apatani etc, besides these non tribal people are also dispersed in different parts of the state.

Apart from the rich diversity in flora and fauna it also exhibits high degree of endemism with about 220 endemic species (Anonymous, 1999). Particularly the tropical and sub-tropical regions of the state harbour maximum diversity of flora. The family **Moraceae** Gaudich often called as Mulberry or fig family under the order Rosales comprising about 37 genera and 1100 species in the world distributed across the tropical and subtropical regions of the world (Berg et al. 2011). The rich species diversity of the Moraceae is found to be well and strongly associated with the rich culture and tradition of local tribal communities. The present study reveals that many wild growing species of Moraceae are used by the people in different way.

MATERIALS AND METHODS

A detailed floristic survey of the Moraceous species was conducted during the years 2010 –2014 and that has covered all wild, naturalized and planted species. The information regarding the usefulness of the recorded plants was collected from different primary or secondary sources (Bhutani 2009; Singh et al 2001; Jain 1991). The collected specimens were processed into mounted herbarium sheets following standard herbarium techniques (Jain & Rao 1977) and deposited in the NERIST Herbarium. The identities of specimens were confirmed by the standard taxonomic procedure through taxonomic literature and consulting herbaria of Botanical Survey of India, Arunachal Circle (ARUN), Itanagar and State Forest Research Institute, Itanagar (APFH).

To understand and record the utility of species ethno-botanical observations of each species collected were made. For the collection of data the methodology of Jain (1987) and Martin (1995) were followed.

RESULT AND DISCUSSION

Total 20 recorded species are known so far for their various uses like wild edible, fodder, wild vegetable, timber and medicine etc. In the state it has been found that a large number of species of the family are strongly associated with the socio-cultural aspects of the tribal communities besides the common economic uses. Based on the present observations as well as the secondary information the socio-economic and ethno-botanical value have been presented in the paper.

The various reported socio-economic uses of the Moraceae members along with ethnobotanical study are summarized below with the local name of species, parts use and pattern of uses.

1. *Artocarpus chama* Buch.- Ham

Local name: Nipam- bangs (Adi); Sam (Ass.); Tip –tim (Nyshi); Robot (Wancho); Pomse/ Massang (Digaru Mishmi); Ebrembo (Idu Mishmi)

Parts used: Trunk, leaf, fruit, seed.

Uses: Young and matured leaves are used as fodder; trunk is good source of timber and fuel wood; fruits are edible; Dried seeds are roasted and eaten as a food. Fruits are used to treat gastric and stomach disorder.

2. *Artocarpus lacucha* Buch.- Ham

Local name: Bohot, Dewa-sali (Assamese); Lisuk- Salia (Miri); Bohot (Assamese); Pome (Digaru Mishmi); Sali (Wancho).

Parts used: Trunk, leaf, fruit, seed.

Uses: Young and matured leaves are used as fodder; trunk is good source of timber and fuel wood, bark is used as masticatory and chew with nuts (specially with *Areca catechu*); fruits are edible; Seeds after drying and roasting are eaten as food.

3. *Artocarpus heterophyllus* Lam.

Local name: Kathal (Assamese); Dadyom se (Digaru Mishmi); Panchaw (Wancho); Bola (Galo).

Part used: Trunk, bark, leaf, fruit and seed.

Uses: Leaves are important fodder for goat; wood is a good quality timber. Immature fruits are either cooked as vegetable or pickled, ripe fruits are eaten raw, short twigs with leaves are lopped for fodder; children use latex from fruits to make sticky gum for hunting birds. Seeds are dried and boiled to eat. Roots are used to treat Asthma, fever and diarrhea. Commonly cultivated for different furnitures.

4. *Morus alba* L.

Local name: Nuni (Assamese); Rokrom (Nyshi).

Uses: Leaves are used for rearing silkworm. Leaves are used as fodder also. Fruits are edible. Barks are used as anthelmintic

and wound healing.

5. *Morus macroura* Miq.

Local name: Anga-taye-changne (Nyshi); Bula (Assamese); Bola (Wancho).

Parts used: Leaves, fruit, wood.

Uses: Young leaves are used as fodder, sometimes it is used for rearing silkworm; Fruits are edible. Wood medicinally is used as anthelmintic and vulnerary and also for house construction.

Note: Due to the high demand of for timber by the local people as well as the people from adjacent state the plant is now at verge of extinction in the wild. In this sense the State Forest Research Institute, Arunachal Pradesh is taking initiative in the cultivation and expansion of the species in the state.

6. *Streblus asper* Lour.

Local name: Houra (Assamese); Hatu(Nyshi)

Parts used: Leaves and fruits.

Uses: Leaves are used as fodder; leafy twigs are used as tooth brush; fruits are edible.

7. *Ficus auriculata* Lour.

Local name: Phup (Wancho); Ote (Galo); Taw (Nyshi); Aapo-se (Digaru Mishmi); Aposi (I. Mish.).

Parts used: Leaves and fruits.

Uses: Young leaves are cooked with pork meat. Fruits are very sweet when ripe and are edible.

8. *Ficus benamina* L.

Local name: Warek (Wancho); Hare (Digaru Mishmi).

Parts used: Fruit and bark.

Uses: Ripe fruits are edible. Sometimes the Galo, Adi and Nyshi people use the bark of the prop root for making rope. It is a sacred tree to Adi, Galo and Nyshi tribe.

9. *Ficus hirta* Vahl.

Local name: Takshin (Nyshi); Naow-tho (Wancho).

Parts used: Leaves and fruits.

Uses: Leaves are used as fodder; the Nyshi people used the leaves for wrapping the wild hunted meat for boiling in the forest for delicious taste. They also use the leaf for wine preparation. The mature fruits are edible.

10. *Ficus racemosa* L.

Local name: Phangrok (Wancho).

Parts used: Leaves and Fruit

Uses : Young leaves used as wild vegetable generally boiled with meat. The ripe fruits are edible. The plant species is used to treat diarrhoea, bronchitis, cystitis and debility.

11. *Ficus maclellandii* var. *rhododendrifolia* (Miq.) Corner.

Local name: Ope (Wancho).

Parts used: Fruit

Uses: The ripe fruits are edible. It is a sacred tree to Wancho tribe. Medicinally the fruits are used to treat stomach disorder.

12. *Ficus semicordata* Buch.-Ham. ex J. E. Sm

Local name: Phuksa- Wangna (Wancho); Bay-tala (Digaru Mishmi); Takuk (Nyshi); Bim-bo (I. Mish).

Parts used: Fruit, leaves, wood.

Uses: The ripe fruits are commonly eaten. The Adi, Galo and Nyshi people usually hide near the fruit bearing plant for hunting as most of the wild animals like Deer, Bear and other footed animals are usually approach the plant to eat the sweet fruits. Medicinally the fruits are used for indigestion, constipation and asthma.

13. *Ficus hispida* L.

Local name: Naothow (Wancho); Takuk-kokam (Nyshi); Sap-le (Digaru Mishmi).

Parts used: Fruit and leaves

Uses: The ripe fruits are edible. Young leaves are used as vegetable and mostly boiled with meat. Fruit and leaves are used for healing burn injury, hypoglycemic and diabetes.

14. *Ficus nervosa* B. Heyne ex Roth.

Local name: Aarembo (I. Mish.); Porok-takuk (Galo); Tham-pan (Wancho); Khari- pati-dimaru (Assamese)

Parts used: Fruit and wood.

Uses: The ripe fruits are edible; wood is used constructing common house and timber.

15. *Ficus virens* Ait.

Local name: Nai (Wancho).

Parts used: Leaves

Uses: Young leaves are used as wild vegetable. It is a sacred tree of Wancho and Mizu-Mishmi tribe. Leaves are medicinally used for cut and wounds.

16. *Ficus curtipes* Corner

Local name: Kathal-patia-bor, Kothalu-jari (Assamese); Nai- sa (Wancho); Manag (Digaru Mishmi)

Parts used: Fruit

Uses: The ripe fruits are edible. Fruits are used as a bait in fishing by attaching in the hook. It is a sacred tree of the Galo tribe.

17. *Ficus ischnopoda* Miq.

Local name: Miklaon (Wancho)

Parts used: The whole plant.

Uses: The plant is commonly used for fishing by many tribes the long branches that grow along the rivulet and streams are kept as barrier of fish in the water flow.

18. *Ficus squamosa* Roxb.

Local name: Miklaon (Wancho); Aam-massang (Digaru Mishmi); Taksap (Galo).

Parts used: The whole plant.

Uses: As the plant is growing commonly in the side of river and stream, the whole prostrate plant is used on barrier to block the water flow during fishing. Moreover the strong branches are used as support while crossing the rivulet and stream.

19. *Ficus drupacea* Thunb.

Local name: Pham (Wancho); Hare (Digaru Mishmi); Sangriko-boem (Nyshi).

Parts used: Fruits.

Uses: Ripe fruits are edible and form the food of birds. Tribal people generally hunt the fruit eating birds, which generally eat the fruits during winter. It is a sacred tree of Mishmi, Adi, Galo, Nyshi and Wancho tribe.

20. *Ficus cyrtophylla* (Miq.) Miq

Local name: Phangnok-rokrang (Wancho); Su-ura (Digaru Mishmi)

Parts used: Fruits and leaves.

Uses: Ripe fruits and young leaves are edible.

The rich species diversity of the Moraceae is found to be well and strongly associated with the rich culture and tradition of local tribal communities. *Ficus semicordata* and *F. auriculata* are mostly used as wild edible fruit in almost all tribal communities of the state. *Morus macroura* is one of the best timber species in the Northeast India as well as in the state and the same is used as important ethnomedicinal plant. The bark is used to treat cough, wheezing, eczema, and to promote urination. It is also used to treat fever, headache and red dry and sore eyes. The bark of *Artocarpus lacucha* is commonly used as masticatory by the local people.

Such traditional associates of the Moraceae species with the local communities as well as the ethnobotanical values contributed significantly in the conservation of the species in both in-situ and ex-situ conditions. The local communities of the state have shown a good example of biodiversity conservation based on the local and traditional belief and association. The conservation effort of local communities deserves support from the government and non-governmental organizations.

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