Evolutionary Medicine Of Kani Tribal’s Botanical Knowledge In Agasthiayamalai Biosphere Reserve, South India

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ABSTRACT

Agasthiayamalai Biosphere Reserve in Tirunelveli zones have had five Kani tribal settlement surveys of ethnomedicinal utilization with more than 480 species of which only 70 species are been reported during the field study 2006-2007. Collected ancestral knowledge was documented in database format by the software Visual Basic 6.0 and M.S Access. Kani tribes reveal that they are capable of treating various diseases. Exploitation and documentation of traditional medicine is essential for the future. Such study will be useful to understand the role and importance of the tribal botanical knowledge in the conservation of medicinal plants of this area.

Key: Agasthiayamalai, Kani tribes, Software, Medicinal plants.

INTRODUCTION

The most ancient and celebrated treatises on Hindu medicine are no doubt the Ayurveda. India also possesses a great heritage of other ancient systems of medicine such as Siddha, Unani and Homeopathy. Nearly 2500 species of plants are used in one way or other by some of these systems. In addition to these traditional systems, there also exists in India a vast knowledge of tribal and folk medicine, which utilize around 7500 species of plants as medicine. Some of the ethno botanically important species have also provided leads for production of modern drugs by pharmaceutical companies. It is estimated that in India 90% of the prescriptions contain plant
products. Ayurvedic and other traditional system of Indian medicines fully depend on wild plants for preparation of drugs.

The World Health Organization (WHO) estimated that 80% of the population of developing countries still rely on traditional medicines, mostly plant drugs, for their primary health care needs. Demand for medicinal plant is increasing in both developing and developed countries due to growing recognition of natural products being non-toxic, having no side-effects, easily available at affordable prices. The medicinal plant sector has traditionally occupied an important position in the socio cultural, spiritual and medicinal area of rural and tribal families (WHO, 2002-2005).

India is known for ancient civilizations and deep-rooted traditions. It is also known for its rich diversity, both cultural as well as biological (Ravikumar et al., 2000). Totally 427 tribal communities are in India (Kala., 2005) having 36 states of Tamilnadu with scheduled tribes. The different ethnic groups settled throughout this place have their own way of life style even in using the plant resources.

Bioprospecting is the search of useful products derived from bioresources. The useful products may be chemical compounds, genes, micro & macro organisms and other valuable products that are useful in medicinal, industrial, agricultural and food sectors. Traditional medicine is also known as “Evolutionary medicine.” (Pamplona roger., 2000).

OBJECTIVES

- This study focuses on the collection of primary data relevant to the experience of the Kani tribes of the Agasthiyamalai especially in the region of Tirunelveli.
- To establish a database of the plants used by Kani tribes with special reference to their indigenous traditional knowledge.
- To create awareness to the local communities about the conservation strategies of these valuable genetic resources.

METHODODOLOGY

Agasthiyamalai Biosphere Reserve (Kalakakad Mundanturai Tiger Reserve-Map 1) located in Tirunelveli zones have Kani tribes practicing traditional medicine were interviewed in five settlements (Figure 1), Servalar, Agasthia Kanikudiyiruppu, Mayilar, Periyamayilar and Inchikuzhi (Henry et al., 1984). The native plants used for the preparation of crude drugs and their administrations
along with doses were recorded through 15 field trips carried out in 52 days during 2006-2007 academic year. Plant voucher specimens were matched, deposited (Diane Bridson and Leonard forman., 1992) in Xavier’s College Herbarium (XCH)-Tirunelveli. Plants were identified by using relevant floras (Gamble., 1935 & 1994; Gopalan and Henry., 2000; Mohanan and Sivadasan., 2002; Nair and Nayyar., 1986 & 1987). Collected information was documented in software using Visual Basic 6.0 and MS Access.

RESULTS AND DISCUSSION

Plants have been used as traditional medicine for several thousand years. Traditional knowledge is a divine gift to humanity. Tribal’s, even today, depend on wild plants and animals for their livelihood. Kani tribals are primarily a semi-romantic community and originated from Kerala. They have slowly shifted and settled in the forest of Tirunelveli region. The ethnomedicinal survey held on tribal doctors suggest they use 70 species. The ethnomedicines of the species are arranged in alphabetical order. The database includes the Botanical name, Family, Vernacular name (Viswanathan et al., 2006), Habit, Description, Parts used, Ethnobotanical use, Ethnomedicinal use, Herbal formulation, Dosage and Pictures of the plants. Sample software screens (Figure 2) and Medicinal Plants (Table 1) are given. Identity and their various indigenous technological knowledge are also presented here (Figure 3).

Traditional knowledge is not protected within the patent system as it stands today. So, it needs for us to protect the biological traditional knowledge. The “turmeric case” highlights the problems faced by India in preventing bio-piracy. The recording of traditional knowledge seeks to reduce the possibility of bio-piracy, but looks to future legislation to effectively protect the rights of the people. Some important structural changes based on sound legal footing are proposed, which can be easily incorporated within the present database, and would go a long way in preventing bio-piracy and protecting the interests of the knowledge-holders (Sangeeta Udgaonkar., 2002).

SUMMARY AND CONCLUSION

The present population has little knowledge about the medicinal plants of the area because most of the knowledgeable, older persons have passed away and the younger ones are not as informed
of traditional methods. However, as in the past, some empirical knowledge of medicinal plants among the tribes continues to be developed and transmitted orally from one generation to the next. The deterioration of the wild flora of this area is to be blamed on population pressure, forest fires, overgrazing, and browsing.

ACKNOWLEDGEMENTS

Ministry of Environment and forests in Government of India, is acknowledged for the financial support for this research work.

REFERENCES


**Map 1. Area of the study**
Figure 1. Kani tribal settlements
Figure 2. Sample software screens
Figure 3. Indigenous technological knowledge
<table>
<thead>
<tr>
<th>Indigenous Technological Knowledge of Kanitribals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
</tr>
<tr>
<td>Fire making</td>
</tr>
<tr>
<td>Agriculture</td>
</tr>
<tr>
<td>construction of wooden Bridge</td>
</tr>
<tr>
<td>Peper cultivation</td>
</tr>
<tr>
<td>Hunting Instrument</td>
</tr>
<tr>
<td>Furniture</td>
</tr>
<tr>
<td>Dehydrated Peper</td>
</tr>
</tbody>
</table>

**Table 1.** Medicinal Plants used as Ethnomedicine.
<table>
<thead>
<tr>
<th>S.N.O</th>
<th>BOTANICAL NAME</th>
<th>VERNACULAR NAME</th>
<th>FAMILY</th>
<th>HERBAL FORMULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Achyranthes aspera L.</td>
<td>Naayuruvi</td>
<td>Amaranthaceae</td>
<td>Grains are ground and eaten.</td>
</tr>
<tr>
<td>2</td>
<td>Xanthosoma sagittifolium Schott.</td>
<td>Paalcheambu</td>
<td>Araceae</td>
<td>Leaf pastes are applied on the surface of body.</td>
</tr>
<tr>
<td>3</td>
<td>Martynia annua L.</td>
<td>Nagathali</td>
<td>Martyniaceae</td>
<td>Leaf paste is consumed with milk.</td>
</tr>
<tr>
<td>4</td>
<td>Borassus flabellifer L.</td>
<td>Panaimaram</td>
<td>Arecaee</td>
<td>Toddy regulates body temperature.</td>
</tr>
<tr>
<td>5</td>
<td>Cocos nucifera L. Thennu</td>
<td></td>
<td>Arecaee</td>
<td>Toddy regulates body temperature.</td>
</tr>
<tr>
<td>6</td>
<td>Elettaria cardamomum (L.) Ellakai Maton.</td>
<td></td>
<td>Zingiberaceae</td>
<td>Leaves are boiled with water, applied on the face.</td>
</tr>
<tr>
<td>7</td>
<td>Abutilon indicum (L.) Sweet.</td>
<td>Thuthi</td>
<td>Malvaceae</td>
<td>Leaf juice is administered orally.</td>
</tr>
<tr>
<td>8</td>
<td>Datura discolor Bernh.</td>
<td>Kattu karuomathai</td>
<td>Solanaceae</td>
<td>Leaf juice is consumed.</td>
</tr>
<tr>
<td>9</td>
<td>Plectranthus amboinicus (Lour.)Spreng</td>
<td>Omavalli.</td>
<td>Lamiaceae</td>
<td>The seeds are inhaled to reduce cough.</td>
</tr>
<tr>
<td>10</td>
<td>Anisomeles malabarica (L.) R.Br. ex Sm.</td>
<td>Sampalthmbai</td>
<td>Lamiaceae</td>
<td>Leaf pastes are consumed with hot water.</td>
</tr>
<tr>
<td>11</td>
<td>Alpinia calcarata Roscoe.</td>
<td>Kattusitharthai</td>
<td>Zingiberaceae</td>
<td>Plant juice is consumed.</td>
</tr>
<tr>
<td>12</td>
<td>Justicia adhatoda L.</td>
<td>Adadodai</td>
<td>Acanthaceae</td>
<td>Leaf juice is drunk.</td>
</tr>
</tbody>
</table>

Cuts and Wounds
13. **Acacia nilotica** (L.) Willd ex Del. | **Karuvelam** | **Mimosaceae** | Flower juice applied on the surface.  
Plant twig resins are applied on the surface.  

14. **Argemone mexicana** L. | **Aathparappi** | **Papaveraceae** | Leaf decoction is applied on wounds.  
Leaf juice is applied on the body.  

15. **Centratherum anthelminticum** Kuntze. | **Malaigambi** | **Asteraceae** | Leaf juice is applied on the surface.  
Leaf powder is mixed with hot oil is applied externally.

16. **Celastrus paniculatus** Willd. | **Peruthi** | **Celastraceae** |  

17. **Tridax procumbens** L. | **Kattunilamparethipachila** Asteraceae |  

18. **Eupatorium odoratum** L. | **Anavathancheli** | **Asteraceae** |  

**Energy stimulant**

19. **Trichopus zeylanicus** Gaertn. | **Arokiyapachai** | **Dioscoreaceae** | Leaves are consumed.  
The fruit is consumed to increase weight.  
The tubers are consumed for cattle.  

20. **Cucurbita moschata** (Decne ex Lam.)Decne ex Poir. | **Poosani** | **Cucurbitaceae** |  

21. **Cyperus rotundus** L. | **Koraipullu** | **Cyperaceae** |  

**Fever**

22. **Baccaurea courtallensis** (Wight) Muell.Arg. | **Maraothipazham** | **Euphorbiaceae** | The pericarp of tender fruit is consumed.  

**Giddiness**

23. **Adenostemma lavenia** (L.) Kuntze. | **Kattusiruvanthanpatchila i** | **Asteraceae** | Plants paste is consumed with milk.
24. *Asystasia chelonoides* Nees. *Kattumaniculiki pachillai Acanthaceae*

The leaves and flowers are consumed with honey.

Leaves and flowers are eaten with honey.

**Hair tonic**

25. *Derris benthamii* (Thw.) Thw. *Kattusirukodipachillai Fabaceae*

Fruits are boiled with coconut oils applied on the head.

26. *Helicteres isora* (L.) W & A. *Valampuri Sterculiaceae*

Fruits are boiled with coconut oils applied on the head.

27. *Eclipta prostrata* (L.) L. *Karisilanganni Asteraceae*

The leaf extract is boiled and applied on the hair.

28. *Hibiscus rosa-sinensis* L. *Chembaruthi Malvaceae*

The raw petals are eaten.

29. *Lawsonia inermis* L. *Maruthani Lythraceae*

Leaf juices boiled the extract is applied with hair oil.

**Menstrual disorder**

30. *Aloe vera* (L.) *Burm.f. SothuKatthalai Liliaceae*

The outer layer is peeled and the inner fleshy layer is eaten directly.

31. *Terminalia arjuna* (Roxb.) ex DC. *Wight & Arn. Marutha maram Combretaceae*

Park juice is consumed.

**Mumps**

32. *Azadirachta indica* A. Juss. *Vemppu Meliaceae*

Leaf cures mumps.

**Nemeticidal**

33. *Carica papaya*L. *Pappalipayam Caricaceae*

Fruits are consumed.

**Piles**
34. **Amorphophallus paeoniifolius** (Dennst.) Nicol.  
**Karaunaikilangu**  
*Araceae*  
The rhizomes are consumed twice a day.

**Rheumatism**

35. **Aegle marmelos** Corr.  
**Vilvam**  
*Rutaceae*  
The fruit resin is used.

36. **Amaranthus spinosus** L.  
**Mullukirai**  
*Amaranthaceae*  
Leaves are boiled and juice is mixed with pinch of pepper powder.

37. **Allium cepa** L.  
**Ulli**  
*Liliaceae*  
Rhizome juice is used.

**Scabies**

38. **Acalypha indica** L.  
**Kuppaimeni**  
*Euphorbiaceae*  
Leaves are ground and applied on the sores of scabies.

39. **Acacia sinuate** (Lour.) Merr.  
**Chiyagai**  
*Mimosaceae*  
The pod powder is applied on the scabies.

40. **Adiantum raddianum** Presl,Tent.  
**Nilasuralipatchilai**  
*Adiantaceae*  
Plant extract is applied on the surface of body.

**Scorpion and Insect bites.**

41. **Hemionitis arifolia** (Fern)  
**Vattasuruli**  
*Heminoitidaceae*  
Whole plants are also used.

**Sexual stimulant**

42. **Moringa oleifera** auct.  
**Murungamaram**  
*Moringaceae*  
Entire plant is a sexual stimulator.

**Skin diseases**

43. **Copadessa baccifera** (Roth.) Mig.  
**Siruvemmpu**  
*Meliaceae*  
Leaves juice is applied on the affected parts.

44. **Alternanthera sessilis** (L.) R.Br.  
**Ponnaganni ex DC.**  
*Amaranthaceae*  
Leaf extract is used.

45. **Bacopa monnieri** (L.)pennell.  
**Neerbrabmi**  
*Scrophulariaceae*  
Whole plant is eaten for rejuvenation of the skin.

http://www.siu.edu/~ebl/leaflets/mahesh.htm  
11/13/08 10:56:11
Skin Irritating

46. Scleropyrum pentandrum (Dennst.) Mulkirayan Santalaceae Whole plant parts are applied externally.

47. Alsotonia scholaris R.Br. Eliapalai Apocynaceae Leaf pastes are applied on the Skin Swelling.

Stomach disorder

48. Bidesns pilosa L. Kuthapachilai Asteraceae Leaf juices are consumed with milk.

49. Acorus calamus L. Vayambu Araceae Dried tuber is eaten with honey.

50. Nigella sativa L. Karugesiragum Ranunculaceae The seeds are consumed.

51. Canna orientalis Roscoe. Vaalai kovai Cannaceae Tubers are consumed.

52. Maranta arundinacea L. Koovaikilangu Marantaceae Tubers are consumed.

53. Tabernaemontan a heyneana Wall. Kattusirumanthapatchilai Apocynaceae Fruits are laxative.

54. Biophytum intermedium Wight. Paarainellipachalai Oxalidaceae Plant paste is consumed with water.

55. Psychotria ophioxyloides (Wall. ex Roxb) Thw. Kaattusirukaapipatchillai. Rubiaceae. Leaves and tender fruits are consumed with milk.

56. Glycosmis mauritiana (Lamk.) Tanaka. Sirumullipatchilai Rutaceae. Leaves and flowers are consumed with ghee.

57. Ixora nigricans R.Br. ex Wight & Arn. Aathusiruvengaipatchilai Rubiaceae. Leaves and flowers is consumed.

58. Tinospora cordifolia (Willd.) Miers. ex Hook &Thomson. Sangivee Menispermaceae The fruits are consumed.
59. Trichosanthes cucumerina L. Pudal Cucurbitaceae
Fruit juice is eaten raw with hot water to cure gas troubles.

60. Ancardium occidentale L. Kollankottai Anacardiaceae
Anthers juices are used as digestive property.

61. Cassia auriculata L. Aavaarai Caesalpiniaceae
Anthers juices are used as digestive property.

62. Citrullus colocyntis Schrad. Kumitikaai Cucurbitaceae
Fruit is laxative.

63. Citrus limon (L.) Burm.f. Narangai Rutaceae
Fruit juice is consumed.
Decoction of this seeds with palm jiggery provides good digestion.

64. Coriandrum sativum L. Yellai Apiaceae
Decoction of this seeds with palm jiggery provides good digestion.

65. Datura metal L. Ummmatham Solanaceae
Fruit is used as a laxative for cattle.

66. Delonix elata (L.) Gamble. Vathamadaki Caesalpiniaceae
The fresh leaves are eaten.
The tubers are boiled and consumed.

67. Gloriosa superba L. Kanthal Liliaceae
Leaves are boiled and bound on the affected part for relief from swelling and inflammation.

Swelling

68. Morinda pubescens Sm. Manjanathi Rubiaceae
Leaves are boiled and bound on the affected part for relief from swelling and inflammation.

Toothache

69. Ficus bengalensis L. Allamaram Moraceae
Prop root is used as toothbrush.
| 70. *Ficus racemosa* L. *Kallathimaram* | *Moraceae* | Seeds are used as purgative. |