

Ethno-botanical survey of anti-diabetic medicinal plants used by the Malayali tribes in Jarugu Malai, Salem district, Tamil nadu

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**ETHNO-BOTANICAL SURVEY OF ANTI-DIABETIC MEDICINAL PLANTS
USED BY THE MALAYALI TRIBES IN JARUGU MALAI,
SALEM DISTRICT, TAMIL NADU**

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Abstract

Traditionally used medicinal plants have been a source of relief in controlling different types of diseases throughout the globe. The present study was conducted on ethno-botanical survey to collect information about the use of traditional medicinal plants for diabetes treatment by (40 - 57 years male & female) the Malayali Tribes in Jarugu malai, Salem District, Tamil Nadu. A total of 30 medicinal plants belonging to 25 families were recorded. This study further strengthened the relationship between indigenous knowledge, ethno-medicinal practices and Pharmacology. Therefore, it is suggested that the survey report on anti-diabetic medicinal plants could be helpful and useful in finding newer anti-diabetic drugs.

Keywords: Medicinal Plants, Anti-diabetic, Malayali Tribes, Salem district.

INTRODUCTION:

India has rich diversity of medicinal plants distributed in different geographical and environmental conditions. It harbors over 8000 medicinal plants. The traditional medical practices are an important part of the primary healthcare system in the developing world (Sheldon et al., 1997). According to the World Health Organization (WHO) as many as 80% of world's population depends today on traditional medicine for their primary health care needs (Azaizeh et al., 2003). Many tribal communities in India still practice use of their traditional knowledge to cure a variety of diseases and ail-ments. Safe, effective and inexpensive indigenous remedies are gaining popularity among the people of both the urban and rural areas, especially in India and China (Kadhirvel 2010). Historically all medicinal preparations were derived from plants, whether in the simple form of plant parts or in the more complex form of crude extracts, mixtures, etc. The primary benefits of using plant-derived medicines are that they are relatively safer than synthetic alternatives. Diabetes mellitus is one of the most common metabolic disorders that arises from malfunctioning of body's mechanism to produce a hormone "insulin," a reduction of the response of peripheral organs to the same hormone, or both and has a significant impact on the health, quality of life, and life expectancy of patients as well as on the health care system. Diabetes now is becoming the third "killer" of mankind along with cancer, cardiovascular and cerebrovascular disease. The present study was focused to know the traditional medicinal plants wealth that is being used by the tribal people of the study area against diabetes.

METHODOLOGY

Study Area

Jarugu malai hills are situated in Southern Eastern Ghats comes under Valapadi Taluk, Salem district. Jarugu malai is at 1200 meters (3,937.0 ft) mountain in the Eastern Ghats of South India. It lies between 11 14'46" – 12 53'30" North latitude and between 77 32'52" – 78 53'05" East longitude and it has an elevation of 881 meters above sea level. Jarugu malai is in an area with a humid subtropical climate, only Hindu Malayali tribes residing in this area.

Ethno-botanical survey

Several field trips were carried out in Jarugu malai hills from January 2015 to August 2015, covering different seasons, in order to know the phenology of the plants an Intensive and extensive field survey was made in Jarugu malai hills and villages in Salem district. The data were collected through repeated field visits and the careful interaction with the village peoples and by participating rural appraisal. The collected specimens were identified taxonomically with the help of available monographs, taxonomic revisions and floras and by using field keys. The data's were obtained from the informed constants of interviewed individuals. Interview of minimum 10 and maximum of 10 traditional healers, and village elders who have been using the medicinal plant for curing the various health problems. The collected data were confirmed and compiled by repeated visits and general talk with the patients.

RESULTS AND DISCUSSION:

A total of 30 medicinal plants species belonging to 30 genera and 25 families were found to be used by the local people of the area surveyed under study for treatment of diabetes. It was observed that the plant parts used for the treatment included leaves, stems, roots, barks, fruits and seeds as well as whole plants. Almost all the plant/plant extracts were found to be prepared in aqueous solution and were consumed during the early hours of the day in empty stomach.

In the present survey, a total of 31 plant species belonging to 30 genera and 20 families were recorded (Table 1). For each species scientific name, local name, family, habit, mode of uses and part(s) used are provided.

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Table(1)

S/No	Botanical Name	Local Name	Family	Traditional Formulation
1	<i>Ageratum conyzoides</i> L.	Pumppillu	Asteraceae	A cup of maceration whole plant is taken twice daily to treat diabetes.
2	<i>Andrographis paniculata</i> (Burm.f.) Wall.	Siriyaa Nangai/ Nila Vembu	Acanthaceae	Whole plant extract is used for diabetic cure. The crude extract is taken at a dose of 1 tea spoonful in empty stomach in the morning hours before meal.

3	<i>Annona squamosa</i> L.	Seetha	Annonaceae	Raw bark/or and leaf were grinded and the extracts were obtained by squishing. The extract is then filtered and used 2 to 3 tea spoon full of extract every morning.
4	<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	Raw leaf extracts mixed with little water is taken at a dose of 2-3 tea spoons daily in empty stomach.
5	<i>Argemone mexicana</i> L.	Biramma thandu	Papaveraceae	Curry made from of stem is used in diabetes.
6	<i>Asparagus racemosus</i> L.	Shatavari	Liliaceae	Juice made from the tuberous root is used in diabetes.
7	<i>Bombax ceiba</i> L.	Elava maram	Bombacaceae	Juice made from immature roots is used in diabetes.
8	<i>Brassica oleracea</i> L.	Cauliflower	Brassicaceae	Squeeze and drink <i>Brassica oleracea</i> leaves to treat diabetes.
9	<i>Cajanus cajan</i> (L.) Millsp.	Thuvarai	Fabaceae	Juice made from immature roots is used in diabetes.
10	<i>Catharanthus roseus</i> (L.) G. Don.	Nithiyakalayani	Apocynaceae	Fresh leaf extracts or fresh leaf may be chewed in empty stomach.
11	<i>Centella asiatica</i> (L.) Urban.	Vallaarai	Apiaceae	Fresh leaf extracts 2-3 tea spoon in empty stomach nearly 21 days in the early diabetic conditions.
12	<i>Citrullus lanatus</i> (L.)	Kommatti	Cucurbitaceae	The bark of the red ripens fruit is dried and powdered. Powder being taken 5-10 gm with water in empty stomach.
13	<i>Coccinia cordifolia</i> (L.) Cogn.	Covay	Cucurbitaceae	Vegetable made from young leaves are used in diabetes.
14	<i>Curcuma longa</i> L.	Turmeric	Zingiberaceae	About 8 gm of raw turmeric were grinded, mixed with water and ½ tea spoon of honey and taken for 1 month after meal.
15	<i>Erythrina variegata</i> L.	Kalyana murungai	Fabaceae	Fresh roots were grounded for obtaining juice. 25 ml juice was taken for 1 week without water.
16	<i>Ficus racemosa</i> L.	Atthi	Moraceae	Ripe fruits are eaten as remedy for diabetes. It is used as a supportive medicine for the diabetes treatment.
17	<i>Ichnocarpus frutescens</i> (L.) R.Br.	Palvalli	Apocynaceae	Powdered root is used in diabetes.
18	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Patharkuchi	Crassulaceae	1 gm of raw leaves grinded with 100 ml of water. Leaf extract, 2-3 tea spoon early in the morning.

19	<i>Leucas aspera</i> L.	Thumbai	Lamiaceae	The plant is believed to be a liver corrective herb. It is used as a potherb during diabetic treatment.
20	<i>Momordica charantia</i> L.	Bitter melon	Cucurbitaceae	Fresh extracts of fruit juice one ounce to be taken empty stomach in the morning. A cup of decoction of whole plant taken orally twice daily to treat diabetes.
21	<i>Moringa oleifera</i> L.	Murungai	Moringaceae	Soak leaves in boiled water for few minutes and drink the water regularly/repeatedly for some weeks to treat diabetes.
22	<i>Murraya Koiningii</i> (L.) Spreng	Curry Leaf/ Kariveppilai	Rutaceae	Leaf extract, 2-3 tea spoon early in the morning.
23	<i>Musa sapientum</i> L.	Vaazhaipoo	Musaceae	Cook and eat mature and unripe fruit or make flour out of it and eat to treat diabetes.
24	<i>Phyllanthus emblica</i> L.	Nelli	Phyllanthaceae	About 10 numbers of fruits were grounded and juice were mixed with honey and taken every day.
25	<i>Spinacea oleracea</i> L.	Spinach	Amaranthaceae	About 200 gm of whole plant mixed with a most equal amount of fresh carrot and grounded to obtain juice which is taken every day in empty stomach.
26	<i>Syzygium cumuni</i> (L.) Skeels.	Naval	Myrtaceae	Seed power about 1 teaspoonful is taken with water in the morning in empty stomach and also in the evening before meals.
27	<i>Scoparia dulcis</i> L.	Sarakkoththin	Scrophulariaceae	Fresh leaves 5-6 in number are eaten or chewed for three times a day before meals.
28	<i>Triticum aestivum</i> L.	Wheat	Poaceae	Cook and eat prepared <i>Triticum aestivum</i> flour to treat diabetes.
29	<i>Tinospora cordifolia</i> (Willd.) Milers.	Cheenthil	Menispermaceae	Leaf stalk powder mixed with neem paste is used in diabetes.
30	<i>Vigna mungo</i> L.	Kattu ulunthu	Fabaceae	About 50 gm of raw seeds grounded and soaked in 1 cup of milk overnight and taken for 20 days.

CONCLUSION

The present study reveals that traditional ethno-botany practices still play a very important role in ethno-medicinal plants in Jarugu malai, Salem district. Ethno-botany practices not only play an important role of primary health care but also play a vital role of conservation of Phytodiversity and cultural diversity. Based on the observations, it is expected that the results of this study will lead to Phytochemical and pharmacological investigations.

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REFERENCES

- [1] Alagesabooopathi.C (2011) Ethnomedicinal plants used as medicine by the kurumba tribals in pennagaram, Dharmapuri District of Tamil Nadu. *ASIAN J. EXP. BIOL. SCI. Vol 2 (1) 2011*
- [2] Anand RM, Nandakumar N, Karunakaran I, Ragunathan M, Murugan V. A survey of medicinal plants in Kollimalai hill tracts, Tamil Nadu. *Nat Prod Rad.* 2006; 5(2): 139–143.
- [3] Arunachalam G, M.Karunanith, N.Subramanian, V.Ravichandran and S.Selvamuthukumar 2009.Ethno Medicines of Kolli Hills at Namakkal District in Tamilnadu and its significance in Indian Systems of Medicine . *J. Pharm. Sci. & Res. Vol.1(1), 2009, 115*
- [4] Ayyanar M, Ignacimuthu S. Ethnobotanical survey of medicinal plants commonly used by Kani tribals in Tirunelveli hills of Western Ghats, India. *J Ethnopharmacol.* 2011; doi: 10. 1016/j. jep. 2011.01.029.
- [5] Dhayapriya, R. G. And Senthil Kumar, S. (2014). Studies On Ethnomedicinal Plants of Malayali Tribes In Bodamalai Hills Of Southern Eastern Ghats, Tamil Nadu, India. *Inter. J.Pharma. Res. & Devel.* 6 (03): 115 – 118.
- [6] Francis Xavier T, Freda Rose A, Dhivyaa M. Ethnomedicinal survey of Malayali tribes in Kolli hills of Eastern Ghats of Tamil Nadu, India. *Ind J Trad Knowl.* 2011; 10(3): 559–562.
- [7] Francisca Govindasamy Bosco and Rajendran Arumugam,(2012). Ethnobotany of Irular tribes in Redhills, Tamil Nadu, India. *Asian Pacific J. Trop. Dis.* 874-877.
- [8] Ganesan S, Chandhirasekaran M and Selvaraju A (2008). Ethno-veterinary health care practices in Southern districts of Tamil Nadu. *Indian J. Trad. Knowled.*, 7: 347-354.
- [9] Jagatheeswari,2010. A Survey of Some Medicinally Important Plants in Villupuram District of Tamil Nadu, India. *International Journal of Pharmaceutical & Biological Archives* 2012; 3(4):905- 909
- [10] Jain, S.K. 2010. Ethno-botany in India: some thoughts on future work. *Ethnobotany*,22: 01 04.
- [11] Jeeva s, Kiruba S, Mishra BP, Venugopal n, Das sam sukumaran s, Regini GS, Kingston c, Kavitha A, Raj ADS,Laloo RC.2006,Weeds of kanyakumari district and their value in rural life.Indian journal of traditional knowledge(4):501-509.
- [12] Kadavul K, Dixit AK. Ethno medical studies of the woody species of Kalrayan and Shervarayan hills, Eastern ghats, Tamil Nadu. *Indian Journal of traditional knowledge* 2009; 8(4)592-597.

- [13] Kadhivel 2010.,Ethnomedicinal Survey on Plants used by Tribals in Chitteri Hills.Environ. We Int. J. Sci. Tech. 5 (2010) 35-45
- [14]Karthikeyani, T.P. And K.Janardhanan.2003.Indegenous medicine for snake,scorpion and insect bites/strings in siruvani Hills,Western Ghats, South india,Asian Jr.of microbial,Biotech. Env,Sc.Vol.5(4):467-470.
- [15] Kishor Kumar, V. And Satheesh Kumar, P. (2011).Ethnomedicinal Plants from Vattamalai Hills of Namakkal, District, Tamil Nadu, India. *Inter. J. Phar. Sci. Revi. Res.* 11(2): 100-106.
- [16] Krishnagar,R.D.& singh, N.P.2000.Less known ethnobotanical uses of plants reported by Jenukurumba tribe of mysore district,Southern india.Ethnobotany.12:118-122.
- [17] Kumar, V., Sachan, P., Nigam, G., Singh,P.K. 2010.Some ethno-medicinal plant of Chitrakoot district (U.P.).*Biozone Int. J. Life Sci.*, 2(1 2): 270283.
- [18] Manimegalai, A., Manikandan, T., Sheela, R. And Elumalai, D.(2013) Ethno Medicinal Plants Used by Tribal of Jawadu Hills in Tamil Nadu. *International Journal of Current Research, Vol. 5, Issue, 01, pp. 104-106, January, 2013*
- [19] Mini V and Sivadasan M (2007). Plants used in Ethno veterinary medicine by Kurichya tribes of Wayanad district in Kerala India. *Ethnobotany* 19: 94-99.
- [20] Murthy, E.N. 2012. Ethno medicinal plants used by Gonds of Adilabad district, Andhra Pradesh, India. *Int. J. Pharm.Life Sci.*, 3(10): 2034 2043.
- [21] Natarajan D, Balaguru B, Nagamurugan N, Soosairaj S,Natarajan E. Etho-medical-botanical survey in the Malliagainatham village, Kandankathri taluk, Pudukottai district, Tamilnadu. *Indian J of traditional knowledge* 2010; 9(1):768-774.
- [22] Pankaj R.Chavhan and Aparna S. Margonwar(2015).Ethnobotanical Survey of Markanda Forest Range of Gadchiroli District, Maharashtra, India. ISSN: 2394-3718
- [23] Parinitha, M., Srinivasa, B.H. and Shivanna, M.B. Medicinal plant wealth of local communities in Shimoga Distirct of Karnataka, India. *Journal of Ethnopharmacology.* 2005; 98: 307 – 312.
- [24] Rahman CH, Ghosh A and Mandal S (2009). Studies on the Ethno- veterinary medicinal plants used by the tribes of Birbhum district, West Bengal. *Indian J. Trad. Knowled.*,33: 333-338.
- [25] Rajadurai.M, V.G. Vidhya, M. Ramya and Anusha Bhaskar(2009). Ethno-medicinal Plants Used by the Traditional Healers of Pachamalai Hills, Tamilnadu, India *Ethno-Med*, 3(1): 39-41 (2009)
- [26] Raju Sathiyaraj, Ariyan Sarvalingam A., Arulbalachandran, Rama Koti Reddy. Diversity of Ethnomedicinal Plants in Bodamalai Hills Eastern Ghats, Namakkal District, Tamil Nadu. *Journal of Plant Sciences.* Vol. 3, No. 2, 2015, pp. 77-84. Doi: 10.11648/j.jps.20150302.16

- [27] Raju Sathiyaraj, Ariyan Sarvalingam A., Arulbalachandran, Rama Koti Reddy. Diversity of Ethnomedicinal Plants in Bodamalai Hills Eastern Ghats, Namakkal District, Tamil Nadu. *Journal of Plant Sciences*. Vol. 3, No. 2, 2015, pp. 77-84. Doi: 10.11648/j.jps.20150302.16
- [28] Rekka R., And S.Senthil Kumar. 2014. Indigenous Knowledge On Some Medicinal Plants Among The Malayali Tribals In Yercaud Hills, Eastern Ghats, Salem District, Tamil Nadu, India. *International Journal Of Pharma And Bio Sciences*. 5(4): P.P 371 – 376.
- [29] Rahman AHMM. Ethno-medicinal investigation on ethnic community in the northern region of Bangladesh. *American Journal of Life Sciences* 2013; 1(2): 77-81
- [30] Santhya B, Thomas S, Isabel W, Shenbagarathai R, 2006. Ethnomedicinal Plants used by the Valaiyan community of Piranmalai hills (Reserved Forest), Tamilnadu, India.- A pilot study. *Afr J Trad CAM*, 3(1): 101-114.
- [31] Sindhu.S ,G.Uma1 and P.Kumudha Survey of medicinal plants in Chennimallai Hills, Erode Districts, Tamilnadu. *Asian J. Plant Sci. Res.*, 2012, 2 (6):712-717.
- [32] Singh, A.G., Kumar, A., Tewari, D.D. 2012. An ethno-botanical survey of medicinal plants used in Terai forest of western Nepal. *J. Ethno-biol. Ethno-med.*, 8: 19.
- [33] Vethanarayanan, P., Unnikannan, P., Baskaran, L. and Sundaramoorthy, P. (2011). Survey on traditional medicinal plants used by the village peoples of Cuddalore district, Tamilnadu, India. *Asian J. Bioche. Andpharma. Res.* 3 (1): 351-36.
- [34] Vikneswaran D, Viji M, Rajalakshmi K. A survey of the ethnomedicinal flora of the Sirumalai hills, Dindigul district, India. *Ethnobot Leaflets*. 2008; 12: 948–953.
- [35] Yineger H, Kelbessa E, Bekele T and Lulekal E (2007). Ethnoveterinary medicinal plants at Bale Mountains National Park, Ethiopia. *J. Ethnopharmacol.*, 112: 55-70.
- [36] Sheldon et al., 1997. Is using medicinal plants compatible with conservation plant talk. 29-31.
- [37] Azaizeh et al., 2003. *In Vitro* Antioxidant Activity of Extracts From the Leaves of *Felicia Muricata* Thunb. an Underutilized Medicinal Plant in the Eastern Cape Province, South Africa