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RESEARCH ARTICLE

Ethnobotanical Study of Body Coolants Used by Tribals of Nallamalais in Telangana, India.

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Abstract

Ethnobotanical survey was conducted to study the body coolants used by the tribes Lambada, Chenchus and Erukala of Nallamalais in Telangana, India. This survey elucidates 38 species of plants which belong to 36 genera and 27 families, used as body cooling agents. Cucurbitaceae family is dominated with 5 species. It was revealed during interaction that some of the plants used as aphrodisiac drugs are also useful as body coolants and may act by reducing body overheat.

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INTRODUCTION

Ethnobotanical knowledge of the traditional system is a source useful to find the most effective remedies for various ailments as they are tested for several generations. One of the main focusing points of the traditional healers is the body heat in the diagnosis of a particular disease. Overheat generated in the body results in slowing metabolism rate, body cooling agents play a key role by lowering the heat and keeping human metabolic processes at normal level. Symptoms of overheat include headache, redness in eye, heat boils on various body parts. It is a common problem based on body nature, diet and weather. It is also one of the least concerned but leading cause for body weakness according to healers (natu vaidyas). Earlier ethnobotanical studies in the different areas of the Nallamalais are Ellis, J.L.(1987), Reddy, M.B(1988), Ramarao, N. (1996), Subramanyam, V. (2003), Reddy P.R.(2003), Ram A.J.(2007), Tulasi Rao K(2007), C.S. Reddy(2007) and D.S.Reddy(2015). But the present study focuses on body coolants used by the tribals of this area in Telangana.

METHODOLOGY

A. Study Area

The Nallamalais are rich in biodiversity, encompass variety of flora and fauna including a Tiger reserve forest. They are a section of the Eastern Ghats, which are located at the latitude of 15°40'41"N, longitude of 79°29'00 E and occupy about an area of 6,740 km². Which stretch primarily over Mahabubnagar and Nalgonda districts in Telangana and Kurnool, Guntur, Prakasam and Kadapa districts in Andhra Pradesh. The Nallamalais consist primarily tropical southern dry mixed deciduous and southern moist mixed deciduous forests (Champion and Seth, 1968). They run in a nearly north-south alignment, parallel to the Coramandal coast for close to 430 Km between the rivers Krishna and Pennar. The study was carried out in Nallamala area in Telangana State, inhabited by Chenchu, Erukala and Lambada tribals. The interior tribal people treat their ailments with their traditional ethnobotanical knowledge as a cheaper and effective way of treatment.

B. Data Collection

Ethnobotanical surveys were carried out during 2012- 2014 by using questionnaire/oral interview. The herbal healers and tribal elders are requested to share their traditional knowledge regarding the cooling agents used by them and the information is documented. The first hand information is verified by identifying the collected plants and comparing with the literature. Plant specimens are deposited in the Herbarium of the Department of Botany, Government Degree College, Ramannapet.

ENUMERATION

The information collected is arranged in alphabetical order in the following manner described: Botanical name, Family, Vernacular name VN, Sanskrit name S, Hindi name H, English name E, Habit/Habitat(Ha), Administration (A).

1. *Acacia nilotica* (L.)Willd. Ex Del. subsp *indica*(Benth.)Branam. (Mimosaceae) VN: Nallathumma ; E: Black babul, Indian gum Arabic; Ha: Evergreen trees; A: Leaves, flowers and fruits are dried, fine powdered, mixed with sugar and two spoons of it consumed daily thrice with water.
2. *Aegle marmelos* (L.) Correa (Rutaceae) VN:Maredu, Bilvam ; S:Silva; H:Bel; E: Bael, Stone apple; Ha: Deciduous thorny trees; A: Ripen fruit pulp is mixed with water thoroughly and taken a glass of it orally daily thrice.
3. *Aerva lanata*(L.)Juss. Ex Schult. (Amaranthaceae) VN: Pindikura; S: Asmahbeda,bhadra; H: Gorak boonti; Ha: Erect or prostrate tomentose herbs; A: A spoonful of root decoction is taken orally daily twice.
4. *Allium cepa* L. (Alliaceae) VN: Ulligadda, Erragadda, Neerulli; S:Palandu, Yavanesta, Durgandha, Mukhadusaka;H: Pyaz; E: Onion; Ha: Herb; A: In case of nose bleeding due to sunstroke, Onion bulb scaly leaves are peeled and smelled for relief, eaten them along buttermilk and rice for cooling effect.
5. *Aloe vera*(L.)Burm.f. (Liliaceae) VN: Kalabanda; S: Grithkumari; H: Gheekuvar; E:Aloe; Ha: Succulent xerophytic herbs; A: Leaves are peeled and the juicy mucilage is eaten with sugar or sugar candy daily.
6. *Asparagus racemosus* Willd. (Liliaceae) VN: Challa gaddalu, Pillipeechara; S: Satavari; H: Satavir; E:Wild carrot; Ha: spiny branched shrubs; A: A spoonful of root powder is mixed with sugar in equal quantity and consumed daily twice with water or 2-3 fresh root tubers are eaten raw daily.
7. *Borassus flabellifer* L. (Arecaceae) VN: Thati; S:Thala; H:Tar, Tad; E: Palmyra; Ha: Palm tree; A: Delicious soft gelatinous fruits are eaten, Sap obtained by tapping the tip of inflorescence(also called Toddy) is taken as a alcoholic drink, jaggery prepared from the sap(Palm jaggery) is used as a refrigerant in medicines and also used to make liquor.
8. *Centella asiatica* (L.) Urb. (Apiaceae) VN: Saraswathi aku; S: Mandukaparni; H:Bramhi boothi; E: Indian pennywort, Gotu kola ; Ha: prostrate herb; A: Leaf paste/juice is applied all over the body specially to children who suffer from fever/ epilepsy used as a refrigerant to reduce the body temperature.
9. *Citrullus lanatus* (Thunb.)Mats.&Nakai. (Cucurbitaceae) VN: Pucchakaya; S: Vrittakarkati, Madhuphala H:Karbuj; E: Watermelon; Ha: Prostrate shrubs; A: juicy pulp is eaten.
10. *Citrus medica* L. (Rutaceae) VN: Nimmakaya; S: Jambira, Nimbu; H: Nimbu; E: Lemon; Ha: Shrubs or small trees; A: Lemon juice is extracted, mixed with sugar and water, used as a drink regularly.
11. *Cocculus hirsutus* (L.) Diers. (Menispermaceae) VN: Doosarateege, Cheepuruteege; S: Barangi, Ambasta, Dirghakanda; H: Farid buti, Patalgarudi; E: Broom creeper; Ha: Climbing shrub; A: Fresh leaf juice is extracted, air dried to make it jelly and a spoonful of it is consumed with sugarcandy daily, it also gives relief in case of heat stroke.
12. *Cucumis callosus*(Rottl.)Cogn. (Cucurbitaceae); VN: Budamakaya, Mulampandu; E:Wild Cucumber; Ha: Prostrate climbers; A: Fruits are eaten raw, also useful to relieve from thirst.
13. *Cucumis sativus* L. (Cucurbitaceae) VN: Dosakaya; E: Cucumber; H: Kakaddi, Keera; S: Trapush; Ha: Prostrate or climbing herbs; A: Raw fruits are eaten to relieve from thirst.
14. *Cucumis melo* L. (Cucurbitaceae) VN: Karbujakaya; H: Karbuj; E:Muskmelon; Ha: Twiners; A: Fruit pulp is eaten or sharbat is prepared to drink.
15. *Cuminum cyminum* L. (Apiaceae)VN: Jeelakarra; H: Jeera; E: Cumin; Ha: Herb; A: Seed power mixed with jaggery or sugar candy and a spoon of it consumed daily twice.

16. *Curculigo orcheoides* Gaertn. (Hypoxidaceae) VN: Nelathadigaddalu; S:Talmuli, Musikaparni, Talpatrika; H: Kali Musali; E: Golden eye grass; Ha: Stemless herb; A: Dried roots are powdered and a spoonful of powder is consumed with sugarcandy or decoction of root powder and taken orally daily twice.
17. *Decalepis hamiltoni* Wt.&Arn. (Periplocaceae) VN: Budapala, Nannari Ha: Woody twiner; A: Tuberous roots are crushed, made decoction with water, filtered and 100ml is taken orally with sugar daily thrice.
18. *Elettaria cardamomum* (L.) Maton var. *cardamom* (Zingiberaceae) VN: Elakulu; S: Elaa; H: Illaychi; E: Cardamom; Ha: Herbs; A: To get relief from burning sensation during urination, seed powder is mixed with sugar candy powder and consumed a spoon with water daily.
19. *Elytraria acaulis* (L.f.) Lindau. (Acanthaceae) VN: Nelamaari, Yeddadugu; H: Patharchatta; E: Bull foot herb, Asian scaly stem; Ha: herb; A: Root paste is mixed with lemon juice and sugarcandy powder and consumed daily.
20. *Ficus racemosa* L. (Moraceae) VN: Medi; S: Oudumbara; H: Goolar; E: Cluster or country Fig; Ha: Large deciduous tree; A: Fruit pulp is extracted, mixed with sugar, water and 20ml is taken orally daily in the morning.
21. *Glycirrhis glabra* L. (Fabaceae) VN: Athimadhuram S: Yastimadhu, madhu-yashtikam; H: Mulethi, mithilakdi; E: Liquorice; Ha: Shrub; A: Rhizomes are powdered, 10-50ml decoction with sugar is taken daily twice.
22. *Hemidesmus indicus* (Asclepiadaceae) VN: Sugandipala S: Anantamul, Sariva H: Dudhli E: Indian Sarsaparilla; Ha: Twiner; A: Tuberous roots are powdered, boiled with water and sugar, decoction is filtered and 100ml is taken orally daily twice.
23. *Hybanthus enneaspermus* (L.) Muell. (Violaceae) VN: Ratna purusha; S: Ratna purush; H: Ratan purush; E: Spade Flower, Pink ladies slipper; Ha: small herb; A: Leaves are dried and powdered, mixed with sugar candy and consumed daily with water and also used as diuretic.
24. *Lagenaria siceraria* (Molina) Standl. (Cucurbitaceae) VN: Sorakaya; S: Tiktalabu; H: Lauki; E: Bottle gourd; Ha: Climber; A: Fruit is sliced and kept at the bottom of the feet.
25. *Lawsonia inermis* L. (Lythraceae) VN: Gorintakuchettu; S: Mendika, Hina; H: Henna E: Henna; Ha: Shrub; A: Leaf paste with a pinch of CaCO₃ is applied around the feet and palms. Leaf paste absorbs the heat.
26. *Ocimum basilicum* (Lamiaceae) VN: Sabja tulasi; S: Tulsi; H: Sabja; E: Sweet basil; Ha: Herb; A: Dried seeds are soaked overnight in a glass of water, swollen gelatinous seeds with water is taken orally daily twice.
27. *Oryza sativa* L. var. *sativa* (Poaceae) VN: Vari biyyam; S: Mana, Dhanya; H: Chaval; E: Paddy rice; Ha: Cultivated herb; A: Rice is boiled in water and the final slimy extract is consumed with salt and raw onion.
28. *Pedaliium murex* L. (Pedaliaceae) VN: Peddapalleru, Enugupalleru; S: Brihat Gokshura; H: Bada Gokru; E: Large caltrops; Ha: Herb; A: Spiny fruits are ground, cloth filtered powder is consumed with sugarcandy or decoctioned.
29. *Phyllanthus emblica* L. (Euphorbiaceae) VN: Usiri; S: Amalica; H: Amla; E: Indian gooseberry; Ha: Tree; A: Fruit pulp is powdered, made paste with water and applied to scalp before taking bath or a spoon of powder is consumed with water daily twice in empty stomach.
30. *Prosopis cineraria* (L.) Druce. (Mimosaceae) VN: Jammi; S: Sami; H: Khejri, Jand; E: Jant; Ha: Evergreen tree; A: Leaves are dried, powdered and mixed with mucilage of Aloe leaves and honey, made small capsules and taken orally daily thrice.
31. *Ricinus communis* L. (Euphorbiaceae) VN: Amudam; S: Eranda, Gandharva hasta H: Arandi; E: Castor; Ha: Shrubs; A: Seed oil is applied to hair and heat is released out through eyes.
32. *Santalum album* L. (Santalaceae) VN: Gandam; S: Sri Chandan; H: Chandan; E: Sandal wood tree; Ha: Tree; A: Bark is extracted with water in the form of paste and applied to neck, forehead and scalp.
33. *Sterculia urens* Roxb. (Malvaceae) VN: Thapsi; H: Katira, Karaya; E: Gum karaya, Indian tragacanth; Ha: Tree; A: Gum is soaked in water and the gelatinous mixture with sugar is taken orally, it is also used as laxative.
34. *Strychnos potatorum* L.f. (Strychnaceae) VN: Chilla, Silla ginja; S: Ambuprasadini; H: Neimal, Nirmali; E: Clearing nut tree; Ha: Tree; A: 1. A pore is made through one of the three markings on the coconut, seed powder of *S. potatorum* is poured through the pore into the coconut, the pore is closed, kept overnight and drink the coconut water early in the morning. 2. Chewing the seeds during the hot summer for cooling effect. 3. Seed/seed paste is added to water to separate mud and purify the water.

35. *Tamarindus indica* L. (Caesalpiniaceae) VN: Chintha; S: Tintrini, Amlika; H: Imli; E: Tamarind; Ha: Tree; A: Ripened tamarind fruit pulp is water soaked overnight, in the early morning juice is extracted and taken along the palm jaggery(made of Toddy sap) daily.
36. *Tinospora cardifolia* (Willd.) Miers. ex Hook. F. & Thoms.(Menispermaceae) VN: Tippateega; S:Guduchi, Amruthavalli; H: Guduchi; E: Giloy; Ha: Climbing woody shrubs; A: Total plant extract(Tippasattu) is taken with a spoon of honey.
37. *Tribulus terrestris* (Zygophyllaceae) VN: Palleru; S: Vana Shrungatak, Gokshura; H: Bada Gokru E: Puncture vine; Ha: Prostrate herb; A: decoction of fruits is taken with sugar candy or fruits are powdered, cloth filtered and consumed with sugarcandy.
38. *Vetiveria zizanoides*(L.)Nash. (Poaceae) VN: Vattiveru; S: Ushira, Resira, Sugandhmul; H: Khas khas; E: Khus-khus, Cus-cus grass; Ha: Herb; A: 1.Root decoction is mixed with sugar/palm jaggery and taken orally 2. Roots are boiled in coconut oil and applied as hair oil 3. Mats made of these roots are hanged at the door side and watered to get cool breeze in the summer.

RESULTS AND DISCUSSION

In traditional medicine body heat plays an important role in finding out the root cause for an ailment. Unlike in Allopathic system of medicine, in traditional medicine body heat is not measured with reference to body temperature. According to the present folk studies redness in eye color, inflammation in eye, urine in dark color with burning sensation, boils or rashes on the skin and lips, headache etc. are the indications of body overheat. Tribal healers mention that body overheat is the primary reason for several health complications like deterioration in eye sight, under growth, sexual weakness etc.

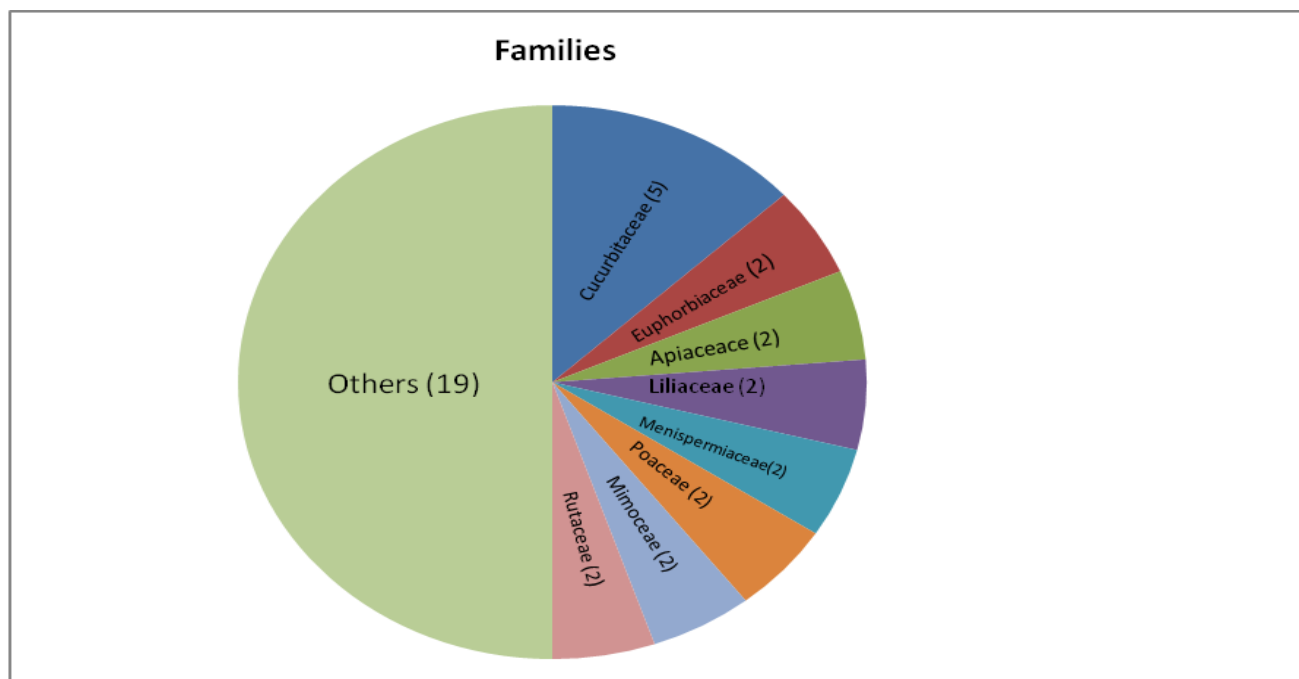


Figure1: Family wise species representation in medicinal use

In the present study 38 species of plants belong to 36 genera and 27 families. Cucurbitaceae family is dominated by 5 species. Fruits/products of this family contain more water content and rich in minerals. Cucurbitaceae is followed by Apiaceae, Euphorbiaceae, Liliaceae, Menispermaceae, Mimosaceae, Poaceae and Rutaceae each of the family is represented by two species and the rest of the families are represented by single species.

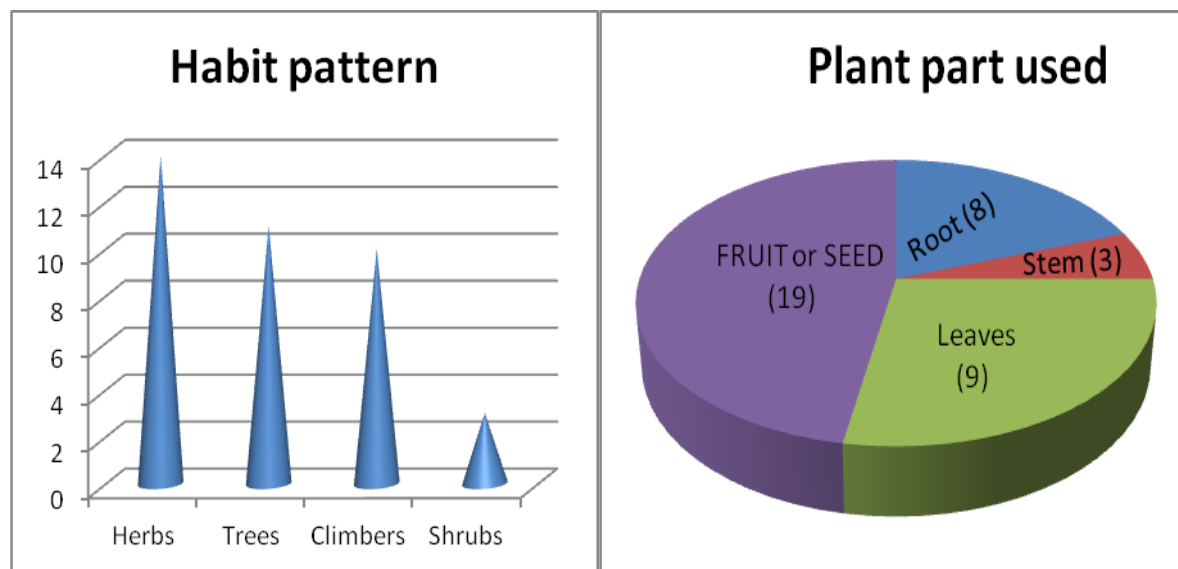


Figure2: Habit pattern of Medicinal plants

Figure3: Part used for remedy preparation

Among the plant species used, herbs dominated with 14 species, trees with 11 species, climbers with 10 species followed by shrubs with 3 species. Fruits/seeds of 19 species are used mostly in medicine preparation followed by leaves (10 species), roots (9 species) and stem (3 species). Water plays a major role in the body metabolic processes and in the cooling of body. Minerals and sugars maintain the osmotic regulation. It is observed during conversations with tribal healers that, many of the body cooling agents are aphrodisiac plants, the overheat may reduce the metabolism rate leads to sexual debility. It is possible that administered medicine causes the cooling effect thereby increases the metabolism rate. Nannari, toddy and Chillaginja are popular among tribal community. Many of the plants are reported here for the first time as cooling agents and needs further study.

V. Acknowledgement

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