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Ethnoforestry and ethnoagricultural knowledge of Malayali tribes of Chitteri hills, Tamil Nadu

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Abstract

Eastern Ghats of Tamil Nadu is rich with floral diversity, landscapes and forms of discontinous terriority hills. The Malayali tribes of Chitteri hills, Southern Eastern Ghats have blessed with wealth of knowledge about the plants. The recognition of the indigenous knowledge of Malayali tribes has come in the form of linking environmental information to the socio-cultural context. Malayali tribes are follow trhe unique ways of sorting the forest types for their livelihood practices. The ethno-agricutural knowledge of Malayali tribes and their storage methods of grains and millets have been studied.

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Introduction

India is one of the great emporia of ethnobotanical wealth with enormorus diversified ethnic groups and rich in biological resources. Traditional knowledge of tribal communities must be consdisered as a legacy from the past generation to present generation. It is culturally oriented and intergal to the cultural identity of the tribal group in which it deserved.It is collective knowledge of traditions used by tribals to sustain and adapt themselves to their environment over time and generally associated with biological materials like agricultural and medicinal resource utilization and experssions of folklore. Several reports are available with ethnomedicinal among different tribal communities of Tamil Nadu. But indigenous knowledge about ethnoforestry and ethnoagriculture is sparely reported. In this perpespective, a study of the traditional knowledge of Malayali tribal of Chitteri hills was undertaken.

Materials and methods

Study area

Eastern Ghats are chains of broken hills ranges and are divided into three zones viz North Eastern Ghats, Middle and South Eastern Ghats. The Southern East portion of the Eastern Ghats in Tamil Nadu consists of several broken hill ranges viz. Javadi, Elagiri, Melagiri, Shervarayan, Chitteri, Kalrayans, Kollihills, Pacchaimalai hills and Bodamalai. They are dissected by rivers such as the Ponnaiyar, Cauvery and Vellar.

The study area Chitteri hills, a part of Southern Eastern Ghats is situated in Pappireddipatti (Tk), Dharmapuri (Dt). On histotrical background, district is divided into three natural tracts such as Baramahal, Balaghat and Talaghat. The Southern portions of district are called Talaghat, which has vast portion of hilly and rocky areas with undulating plains, where the study area Chitteri hills is located.

Chitteri hills is situtated towards North East of Salem town within the geographical limit of 78°51'10" - 78°32'40" E, longitude and 11°55'14"N - 12 °4'48" latitude and occupies an area of about 654.22 Km^2. The hills forms a compact block consisting of several hill ranges and contain tangled ridges and ravines running in the North East and South West directions, enclosing many narrow valleys, rivers viz., Kallar, Varattar, Kambalai and Anaimaduvu. In the western region, Thottilmadu rivulet join with Varattar rivulet and reach Varattar dam or Vallimadurai dam located in the foot hills of Chitteri near Vallimadurai village. Kalmaduvu rivulet flows towards southern region and reach Puluthikuttai dam of Salem district. The Kottar rivulet flows towards Eastern region and joins with Kottapatti rivulet and reach Sattnur dam of Tiruvannamalai district.

Topography of the study area

Climate

Chitterii hills fall under tropical belt and it is generally hot climate. Maximum and minimum mean temperatures are 39.5°C and 19°C, while in winter, 31°C and 18°C respectively.

Rainfall

The study area is falls under tropical monsoon climate. The average annual rainfall ranges from 800 mm to 1000 mm. The whole catchment gets rainfall both from South West and North East monsoons. October and November are the rainiest of the months.

Soil

The rocks on Chitteri hills are chiefly granites in composition. Soil is generally shallow and reddish loam, varying in fertility and often mixed with gravel and boudlers black soils are seldom found in the forests. Red soil and yellow-red soils are the predominant soil types. The diamond granite is found in scattered pockets and lime stones of cretaceous period are also found (Harur forest report, 2007).

Vegetation

The vegetation types of Chitteri hills are classified into six major types of vegetation i.e. evergreen forests (143.14 ha), semi evergreen (1103.60 ha), dry mixed deciduous forests (36769.9ha), reparian (304.18 ha), dry deciduous scrub (7406.66 ha) and southern thorn scrub (3650.15 ha) (Areendran & Prakash Rao 2006).

Malayali Tribes

The most significant and dominant tribal community in Chitteri hills of Tamil Nadu are Malayali tribes. According to 2011 census (provisional) there are about 11,582 Malayali tribal. Most of the Malayali tribes of Chitteri are followers of Hinduism. The dialect language of Malayali is Tamil. The population of Chitteri hill is decreasing year by year due to the migration of people from hills to other places to improve their economic status. Literacy rate of people is increasing steadily in last few decades. The literacy rate in men is 71% and in women is 50%. Chitteri union was started in 1958. There are about 60 villages, out of these 6 villages located in plains and 54 villages are located in hill tops.

Life style

Agriculture is the principal occupation for majority of the tribes and supplement their economy with activities like hunting and livestock. Their agriculture is characterized by unproductive, uneconomic, lack of irrigational facilities and seasonal type. Among Malayali tribes, 58.8% are cultivators (Harur forest report, 2007). Nearly 70% of the people depending on agriculture for their daily life. They mainly cultivate food crops, vegetables and fruit yielding trees. The food crops cultivated in this region are groundnut, millet, pearl millet, rice, ragi, etc. The vegetable crops found include cho-cho, pumpkin and coccinia. Fruit yielding trees cultivated are cashew nut, custard apple, guava, mango, lime and jackfruit. Pine apple is also cultivated (Harur forest report, 2007).

There are about sixty villages,out of these six villages located in plains and 54 located in hill tops.The Malayali tribes are major tribal community that is part of the Dravidian language group spoken in Tamil Nadu. Interviews with knowledgeable inhabitants and farmers were conducted in the regional language tamil in order to understand the traditional knowledge of Malayali tribes (Scultes, 1960 and Jain 1999, 2010). In addition to that, we consulted the village head, who is familiar with the area and individuals who are authorities in aboriginal botanical knowledge. The data were gathered in a series of structured, semi-strucutred and unstructured interviews regarding plant uses and identification during several field trips.

Results and discussion

Ethnoforestry knowledge

Malayali tribe of chitteri hills recognize or identify the forest in and around based on extensive knowledge on the vegetation of the forest. Generally, trees which are not dominated by any one species, but it is composed of diverse species are called by Malayali tribe as palavagaiyana kaadu – literally means diverse forest. If forest found in large extent unlike patches dominated by single species (or) mixed species is called as perunkaadu- large forest.(Table -1)

Apart from the vegetation, knowledge to recognize the forests by the Malayali tribes to use some kind of land mark to recognize the forests. The land mark is mainly based on forest uses, animal stay, etc. The mattukaadu is recognized by tribes where they use forest for grazing domestic animals. The Naduthitu is forest with numerous rocks is present. Painaimudai is place in forest where the bore is used to stay in rocky places during rainy seasons. The China kaadu is forest place recognized by deer dominantly present. The Iruliatchi madavu is forest place where once Irular tribes came to forest to collect tubers and lichens for their use and stayed in the place.

Similarly the *pwo Karen* in Western Thailand classify the all forestland based on stages of vegetation and growth on the forest and for

cultivation. Delang and Wong (2006). The terms are given to patches of forest primarily according to their stage of vegetation growth.

MAE LA WAKLA: Bamboo forests are the only forest type to be named after the species of vegetation, because these forests are the only ones in which a single identification plant type dominates.

MAE LA VIA PEUH: Literally means grassland forest

Table 1. Ethnoforest naming of Chitteri hills by Malayali tribals.

S.No	Ethnoforest naming	Vernacular Name	Dominant Species
1	Kaarparai kaadu	Kaara maram	Randia dumotorum
2	Pullain kaadu	Pulli maram	Tamarindus indica
3	Thethan kaadu	Thethan	Strychnos potatorum
4	Silari kaadu:	Silari	Shorea roxburghii
5	Allan kaadu	Allan	Memecylon edule
6	Mungil kaadu	peruvarai.	Bambusa bambos
7	Karimarathusunai	Kari maram	Diospyros ovalifolia
8	Sanchalakaka parai	Sanchalaka chedi	Coleus aromaticus
9	Koramarathusadu	Kora maram	Ixora pavetta
10	Ponari pallum:	Ponari	Premna tomentosa
11	Karipala pallum	Kariveppali	Murraya koenigii
12	Athi kadi	Acha maram	Hardwickia pinnata
13	Sempulichan thuli	Sempulichan maram	Erythroxylon monogynum
14	Thumbaran kal:	Thumbaran maram	Diospyros melanoxylum
15	Elathakadai pallum	Naval maram	Syzgium cumini
16	Tharanikodi Verinagalu	Tharani	Dodonea viscosa
17	China oomathikaadu	Oomathai	Datura metel
18	Paichaikattuparai	mulai /peruvarai.	Bambusa bambos
19	Mungil kaadu	Siruvarai peruvarai	Dendrocalamus strictus Bambusa bombos

LAI KLA: Forest is characterized by rocky terrain on mountain slides or hill slopes with sparse clumps of trees and bamboo.

HRAO PEUH: The identification of the land under cultivation in forest.

The local tribal people of Kitulanghalo forest reserve, Eastern Tanzania name their villages and townships in the district are named after common tree species Luoga (2000).

MASEYU: Named after *Xerophyta spekkei* tree species.

MIKESE: Village named after *Acacia seyal* tree species.

MKUYUNI: Township was named after *Ficus* spp.

MKAMBALANI: Village named after *Acacia nigrescens* tree species.

Ethno-agricultural Knowledge

About 100 wild plants were collected and cultivated since agriculture began. Today only 15 species supply 90% world food (Lal & Lal, 2004). Different tribals within their culture have different knowledge and use of different ecosystems and plant species.

Malayali tribes in Chitteri hills are blessed with rich biological diversity and high levels of traditional knowledge. They live in close proximity with biodiversity rich land scapes have evolved locality specific. Malayali tribes prefer to continue the cultivation of traditional cultivars, as those are ecologically viable and valuable. They are also have practical seasons which satisfy their high calorie requirements that are required for their life.

Malayali tribes are classified the cultivatable lands into hills and terrains of dry and wet categories. The dry land is available in large extent when compared to wet lands. The major portion of wet land cultivation tract is seen by the sides to hill streams, where plain landscape is available. Surface waters like hill streams, tanks, pond and reservoirs are the major sources of water supply. The other ground water resources are the springs and wells.

Most of the crops which they raise are rain fed crops. The tribals still use the local variety of seeds. Malayali tribals cultivate a few species of paddy and millets which are drought resistant and to some extent disease resistant and pest tolerant. They also practice mixed cropping, which enables them to cultivate cereals, pulses and oil crops together in limited area depending on monsoon rain. Weeding is done manually. Harvesting and thrashing is done with help of draft animals (or) manually.

Millets is a heterogeneous groups known for their small coarse grains (Weber, 1998). Millets are often account less than 1% of food grain produced in the world today and superior in many ways to more traditional cereals crops. Millets are old world origin of regions in Asia and Africa (Rachis, 1975;Rao,1989 and Fuller, 2002).

Malayali tribals of Chitteri hills cultivate diversity of millets. The tradition and knowledge about the cultivated crops is unique in distinguishing between varieties of crops. The commonly cultivate pearl millet, finger millet, Koto millet, foxtail millet and little millet. The time duration, taste, resistant to disease, tolerant to drought, yield, thrashing characters, seed size and inflorescence size characters were used for classification (Rengalakshmi,2005)

Pearl millet

The Malayali tribals cultivate two varieties of pearl millet namely Nattukambu and Vivachaikambu, both varieties is sowed in April-May season. The time duration for harvesting is about 3 months. The nattukambu is medium sized plants, has small inflorescence and small seeds. Malayali tribal cultivate this variety for taste though the yield is less when compare to other variety and moreover thrashing of seeds is easy. Seeds are withered away from the inflorescence so easily because no husk is found in this variety.

Vivachaikambu is large plant, has large size inflorescence and large seeds. Malayali tribals prefer this variety only for the high yield. The taste is less than other varieties. The variety is not easy to thrash because of husk and this variety is disease susceptible.

Fox tail millet (Tinai)

Malayali tribes has two varieties of fox tail millet namely Pallamtinai, Sentinai, both varieties sowed in April-May season and time duration for harvesting is three months. Pallamtinai seeds are whitish orange in colour and has more taste and yield is more when compare to other variety. Sentinai seeds are orange colour and the variety is disease and drought

tolerant. Malayali tribals depend upon their need they cultivate the varieties.

Little millet (samai)

Malayali tribals cultivates two varieties of little millet. i.e Pillu samai and Karum samai. Pillusamai is cultivated crop of three months duration, grow about 1metre height and has large inflorescence. The seed are black and ash colour. The yield is more when compare to other varieties. Karumsamai is cultivated crop of six months duration and moreover it is cultivated as inter-crop. This variety is sowed in the month of June. The variety grows about 2 m height and has very large inflorescence. The seeds are dark black in colour. The variety is drought and disease resistant.

Kodo millet (varagu)

Two variety of kodomillet was cultivated by Malayali tribals, they are Panivaragu and thirivaragu / kuthari vali. Panivaragu is a 3 month crop and grows about 1metre height. The seeds are black in colour. Thirivaragu is a six month crop and grow about 1mt height. The seeds are more taste when compare to other varieties. The variety is more susceptible to disease, but it is drought tolerant. If the seeds are cooked and eaten as such without selection of seeds, it leads to sokku. Malayali tribals select the seeds by immersing in water and selected the immersed seeds for cooking.

Finger millet (kezhvaragu)

Only one variety have been cultivated by Malayali tribe and sowed in Aadi pattam and harvested in 3 months. Many tribes across the world cultivate different varieties of millets and classify according to their uses.Rengalakshmi 2005 reported how traditional Malayali tribal farmers in Kolli hills, India recognize 15 varieties of millets from the four Linnaean binomials *Panicum sumatrese* Roth ex Roem. & Schult, *Panicum miliaceum* L. *Paspalum scrobiculatum* L. and *Seteria italica* (L.) *Beauv*. Malayali tribal farmers classify land races of millet using plant morphology, gastronomic character (digestibility) and functional characteristics such as time for maturation and ecological tolerance. The Ethiopian tribal classify the Sorghum land races based on morphological characters such as stem juiciness, midrib colour, grain shape, plumpiness, covering and size as well as glume colour, hairnets and gastronomic characteristics (Teshome *et al*., 1999). The Wola tribal distinguish varieties of sweet potato by looking at size, shape and color of the leaf, skin and flesh colour of the tubers (Sillite,1983).

Store houses

Man had entered into a purposeful fight against the continuous losses of the crops and grains in storage even thousands of years ago. Farmers even after their strenuous efforts for producing crops, they are struggling hard to protect their grains from various conditions causing damage to them. The farmers might have been processing excellent storage structures and practicing indigenous storage techniques. These structures protect the stored grains do not cause health hazards apart from being eco-friendly, cheaper and locally available.

The Malayali tribals of Chitteri hills have unique knowledge in storing seed material for sowing and the grains for consumption are preserved in traditional granaries. These granaries are made of bamboo and coated with red soil. The roof is conical which is thatched with local grass. There is a free flow of air in the granaries, which may be one of the reasons that the seeds could remain viable till it is used next time. Their traditional way of *storing* in indigenous granaries has helped indirectly maintain the viability of the grains. The body grain stored for future use named *Thaniya thumbai*. It is high bamboo bins finished by mud and top was thatched by grass plant *Themeda cymbaria* that is highly suitable for local weather conditions. Also the use of leaves of plants serves to repel storage pests. It is placed outside of their houses on flat rocks, which is highly elevated from the soil. These grains keep off rodents and pests.

The community cooperation and participation prevailing in the Malayali tribal community has helped conserve the seed material of minor millets for many years. Every family in the community contributes an amount of grain to the granary. This practice enables the tribal to borrow grains during important occasions, such as marriages, social events and festivals or to conserve seed material, even if community members produce less in any one season or exhaust their own household stocks.

Knowledge of Soil

Malayali tribes name the place based on the characteristic of the soil. A place in Alagur Segampatti hamlet is rich in white stone, so they name the place as vellaiman kozhi. Likewise in Chitteri hamlet a place is rich in red soil and named as semmankozhi. Malayali tribe use these soil for house hold purpose, white stone used for washing and red soil is used for marking in their housed for aesthetic bordering.

Conclusion

Traditional knowledge is the totality of all knowledge and practices, whether explict or implict used in the management of socio-economic and ecological facets of Malayali tribals of Chitteri hills. It include about the use of specific plants and there identification, harvesting. This knowledge is established on past experiences and observation. It is usually a collective property of a Malayali tribal society. This knowledge is transmitted from generation to generation. Malayali traditional knowledge is dynamic in nature and changes its characters as the needs of tribal changes.

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