

Analyzing the Cultural Utilities of Non Timber Forest Products (NTFP's) among the Tribes of Western Attappady in Kerala

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ABSTRACT The indigenous communities residing near to the forest areas depended on the forest resources for sustaining their livelihood. An attempt to document the level of dependency of the tribes in Western Attappady (Irula, Muduga and Kurumba) on Non Timber Forest Products (NTFPs) was done through this study. Pre-tested questionnaire survey and semi-structured interview was conducted in the randomly selected one hundred and fifty households. The tribal communities made use of 52 NTFPs, among them 17 NTFPs were used as food, 19 NTFPs as medicine, 6 NTFPs for religious ceremonies and 20 NTFPs collected as a source of income. The Kurumba community settled in the interior areas of the forest has utilized more number of NTFPs than the other two tribal communities settled in the fringe areas of the forest.

INTRODUCTION

The forest resources largely NTFP's, play a pivotal role in the viability and subsistence of forest dwellers because of the significance of forests in their social, cultural and economic survival (Das 2005). The forest resources are viewed as a viable source for both subsistence and cash income (Islam et al. 2013). The livelihoods of the people living close to the forest and within the forests are inextricably linked to the forest ecosystem. The tribal people are often called as ecosystem people who live in harmony with the nature and maintain a close link between man and environment (Xavier et al. 2012). Indian forests are diverse enough to have large number of NTFP's, such as medicinal and aromatic plants, leaves, fruits, seeds, resins, bamboos and canes that offers various uses and employment to the indigenous people (Rasul et al. 2008). Moreover, 60 percent of NTFP is consumed as food or as a dietary supplement especially during lean season by forest dwellers (Bauri et al. 2015). Non timber forest products are often one of the few income opportunities providing a safety net when other activities fail to provide income (Shackleton et al. 2007). It was estimated that 275 million poor rural people in India, 27 percent of the total population depend on NTFP's for at least part of their subsistence and cash livelihoods (Malhotra and Bhattacharya 2010). To promote NTFPs-based livelihood enterprises, more emphasis should be given for

sustainable harvest, value-addition and marketing (Chavan et al. 2016).

Out of 5000 plant species identified from Kerala part of the Western Ghats, 549 species are recognized as NTFP's (Vidyasagaran 2012). The wild food plants are used as common household food; make a substantial contribution to the subsistence livelihood of the tribal people (Biswal 2009). The tribe Cholanaikkans residing in Nilambur forest of Southern Western Ghats consumed 40 species of wild edible plants as food including leaves, fruits, roots, tubers, rhizomes, seeds etc. for maintaining their dietary equilibrium (Thomas et al. 2012). In Wayanad, the tribal dominated district in Kerala the Paniya community possesses knowledge regarding 136 taxa of wild edible plants, the Kattunaikkans coming next with knowledge of 97 taxa and followed by the Kurumas with knowledge of 42 taxa of wild edible plants (Narayanan et al. 2011). There are 434 flowering plants used by the tribal people of Wayanad of which 184 are used for food (Hema et al. 2006), 244 are of medicinal use (Silja et al. 2008) and 68 plants are recorded for other uses like fish poisoning, magico-religious purposes (Pramod et al. 2003). Medicinal plants are NTFP's that are of particular importance to the rural poor, who harvest these from the wild to meet their primary healthcare needs as well as their livelihood needs (Krishnakumar et al. 2012). The tribes collected the medicinal plants from the natural habitat and never cultivated them for their use (Poyil 2013). The Arnatan tribes of

Nilambur region utilized various parts like leaves, bark, roots and rhizome of 30 species of medicinal plants for both internal and external applications in the treatment of various ailments in their daily life (Thomas et al. 2013).

Attappady was once a tribal dominated region, due to high influx of settlers a lot of changes has occurred in the lifestyle of indigenous communities. The high rate of infant mortality in the recent years led Attappady to an area of national significance. Thus an attempt to analyze the level of dependency of the indigenous communities on the forest resources for food, medicine, construction purposes, firewood and income are the main objectives of the study. The major factors which determine the dependency on these forest resources are also looked into in this study.

METHODOLOGY

The study was conducted in Western Attappady which mainly encompassed with the buffer zone of Silent Valley National Park in Palakkad district of Kerala. Nine settlements namely Mukkali, Karuvara, Chindakki, Thadikundu, Anavayi and Thudukki were selected for the study. The study was conducted during December 2013 to June 2014. The details about the settlements are shown in Table 1. The Irula hamlets are at Karuvara, Chindakki and Mukkali. The Mudugas occupied the Karuvara and Chindakki settlements. The Kurumba settlements are at Thadikundu, Anavayi, Palappada and Thudukki. Simple random sampling method was adopted for the selection of samples, the unit of study being the household. From the three tribal groups, fifty households (n = 50) from each community were randomly selected for the study. In

total one hundred and fifty households (N = 150) were surveyed as part of the study.

The study was mainly based on primary data collection and was supplemented with secondary data wherever necessary. A pre-tested questionnaire survey and semi-structured interview was conducted with the help of local persons in the representative households of each tribal settlement. The data regarding the utilization of NTFPs were collected using the pre-tested questionnaire survey and semi-structured interview.

RESULT AND DISCUSSION

The tribes of Western Attappady depended on 52 NTFP's for meeting their various requirements. The level of dependence on the forest resources among the Irulas, Mudugas and Kurumbas of Western Attappady for food, medicine, construction, religious purpose and income are furnished below.

NTFP as Food

All the three tribal groups had shown their dependency to certain NTFP's for food to fulfill their dietary requirements. All the three tribal groups together consumed 17 NTFPs. The 17 species constituted of 4 leaves, 9 fruits, 3 tubers and honey (Table 2). The leaves of *Amaranthus spinosus*, *Murraya koenigii*, *Mesua ferrea*, *Solanum torvum* and fruits of *Artocarpus heterophyllus*, *Capsicum frutescens*, *Garcinia gummigatta*, *Grewia tiliifolia*, *Mangifera indica*, *Syzygium cumini*, *Cycas circinalis* and *Tamarindus indica* were used by the tribes. Honey was the popular product collected among all the 3 tribal groups. The Irulas and Mudugas did not

Table 1: Description of the hamlets of tribes in Western Attappaddy

S. No.	Hamlet	Tribal group	Population (Nos)	No. of houses	Distance from *Mukkali (km)
1	Chindakki	Muduga	108	30	5
2	Karuvara	Muduga	158	45	4
3	Karuvara	Irula	111	26	4
4	Chindakki	Irula	253	72	3
5	Mukkali	Irula	178	45	0.1
6	Thadikundu	Kurumba	129	36	7
7	Palappada	Kurumba	11	5	7
8	Anavayi	Kurumba	411	110	14
9	Thudukki	Kurumba	378	60	18
	Total		1737	459	

Source: ITDP Office, Agali; * denotes nearest township

Table 2: NTFP's used as food among various tribal groups in Western Attappady

S. No.	Item	Local name	Community involved	Part used
1	<i>Amaranthus spinosus</i>	Kattu keera	K	Leaves
2	<i>Artocarpus heterophyllus</i>	Sakke	I, M,K	Fruit
3	<i>Capsicum frutescens</i>	Jeenimula	I,M,K	Fruit
4	<i>Colocasia antiquorum</i>	Kattu kilanguSola kilangu	K	Tuber
5	<i>Cycas circinalis</i>	Eenthu	I,M,K	Fruit
6	<i>Dioscorea oppositifolia</i>	Erraikodi	K	Tuber
7	<i>Dioscorea pentaphylla</i>	Noora kilangu	K	Tuber
8	<i>Garcinia gummigatta</i>	Kudampuli	I,M,K	Fruit
9	<i>Grewia tiliifolia</i>	Uluma	K	Fruit
10	Honey (<i>Apis dorsata</i>)	Then	I,M,K	Honey
11	<i>Mangifera indica</i>	Mave	I,M,K	Fruit
12	<i>Murraya koenigii</i>	Karampa	I,M,K	Leaf and fruit
13	<i>Mesua ferrea</i>	Churula	K	Leaf
14	<i>Solanum torvum</i>	Kanka	I,M,K	Leaves
15	<i>Syzygium cumini</i>	Njaval	I,M,K	Fruit
16	<i>Tamarindus indica</i>	Puli	I,M,K	Fruit
17	<i>Ziziphus rugose</i>	Juli	K	Fruit and bark

I: Irula, M: Muduga, K: Kurumba

prefer tubers. The species like *Amaranthus spinosus*, *Colocasia esculenta*, *Dioscorea oppositifolia*, *Dioscorea pentaphylla*, *Grewia tiliifolia*, *Mesua ferrea* and *Ziziphus rugosa* were used only by the Kurumba community. The other NTFP's were used by all the three tribal communities as food. The forest foods contribute to the food security as a way of ensuring safety nets during the periods of shortage in rural households (Nkem et al. 2007). Among the three communities these products were utilized by Kurumba to meet their dietary requirements during the lean season. The Kurumbas of Nilgiri have subsisted as food gatherers whose staple foods are wild tubers, wild fruits and other minor forest products (Ramachandran and Udhayavani 2013). The Non-timber forest products have an important role to play in alleviating poverty, dietary shortfalls of the forest dependent people during particular lean seasons in the year. Since the Muduga and Irula settlements were to the fringe areas of the forest they had various other options such as shops near to their settlements, so they had more purchasing tendency rather than going to the forest for collecting the resources.

NTFP as Medicine

All the tribal groups have been using medicinal plants for treating the various primary ailments. Altogether 19 medicinal plants were used by the tribes of Western Attappady (Table 3).

The barks of species like *Acacia caesia*, *Calophyllum polyanthum*, *Dalbergia latifolia*, *Grewia tiliifolia*, *Mallotus philippensis*, *Terminalia bellerica* and roots of *Cajanus albicans*, *Helicteres isora*, *Ocimum americanum* were used for treating various ailments. The various medicinal preparations were made using the leaves of *Cyclea peltata*, *Desmodium gangeticum*, *Senna hirsuta*, *Sida rhombifolia*, *Bauhinia malabarica* and tubers of *Canavalia africana* and *Gloriosa superba*. The flower of *Palaquium ellipticum* and whole plant of *Balanophora fungosa* were also used by the tribes. Among these, bark of *Acacia caesia* used against stomach ache and flower of *Palaquium ellipticum* were used by Irulas against kidney disorders. The species such as *Balanophora fungosa*, *Bauhinia malabarica*, *Cajanus albicans*, *Calophyllum polyanthum*, *Canavalia africana*, *Dalbergia latifolia*, *Gloriosa superba*, *Helicteres isora*, *Mallotus philippensis*, *Senna hirsute* were used only by Kurumbas. *Cyclea peltata*, *Desmodium gangeticum*, *Sida rhombifolia*, *Ocimum americanum* and honey were used by all the communities. The bark of *Acacia caesia*, *Terminalia bellerica*, *Grewia tiliifolia*, *Dalbergia latifolia* and roots of *Helicteres isora* were used for curing the stomach problems. Medicinal plants were used in treating various ailment categories, with the highest number of species being used for gastro-intestinal disorders (Uprety et al. 2016). The Kurumba had depended more on the medicinal plants than other groups because

Table 3: NTFP's used as medicine among tribes of Western Attappady

S. No.	Item	Local name	Part used	Community involved	Use
1	<i>Acacia caesia</i>	Erraksinka	Bark	I	Medicine for stomach ache
2	<i>Balanophora fungosa</i>	Nilabombu	Whole plant	K	Swellings
3	<i>Bauhinia malabarica</i>	Ashamaram	Twig	K	Against eye disease
4	<i>Cajanus albicans</i>	Parivasappa	Root	K	Wounds
5	<i>Calophyllum polyanthum</i>	Kattupunna	Bark	K	Veterinary medicine
6	<i>Canavalia africana</i>	Kilara	Tuber	K	To treat piles, wounds and swellings
7	<i>Cyclea peltata</i>	Padaberu	Leaves	I,M,K	Against leech bite, stomach pain, itching
8	<i>Dalbergia latifolia</i>	Etti	Bark juice	K	Against stomach pain
9	<i>Desmodium gangeticum</i>	Kaduppukodi	Leaves	I,M,K	Against loose motion
10	<i>Gloriosa superba</i>	Kodakizhangu	Tuber	K	Poison, used against snake bite
11	<i>Grewia tiliifolia</i>	Chadachi	Bark	K	Stomach pain
12	<i>Helicteres isora</i>	Kavari	Root	K	Stomach pain
13	Honey	Then	Honey	I,M,K	Fever
14	<i>Mallotus philippensis</i>	Kathivettu	Bark	K	Knife wounds
15	<i>Ocimum americanum</i>	Thulasi	Root and leaves	I,M,K	Tooth ache
16	<i>Palaquium ellipticum</i>	Paalipoovu	Flower	I	Kidney disease
17	<i>Senna hirsute</i>	Thakara	Leaves	K	Head ache
18	<i>Sida rhombifolia</i>	Kulamaru	Leaves	I,M,K	Rheumatism, swelling
19	<i>Terminalia bellerica</i>	Tanni	Bark	K	Stomach problems

I: Irula, M: Muduga, K: Kurumba

no immediate hospital or transportation facilities were available for the interior settlements. So for the immediate relief they depended on the surrounding medicinal plants. For Irula and Muduga settlements transportation facilities are available, enabling them to take patients immediately to the hospitals. So their dependence had decreased.

NTFP for Firewood and Construction Purpose

The solid bamboo, *Dendrocalamus strictus* was mainly used for the construction of the cattle sheds, whereas the twigs of *Phoenix loureiroi* used for the thatching purpose. The NTFPs used for the household purposes are given in Table 4.

The rope for tying was made from the stem fibres of *Helicteres isora* and *Ochlandra travancorica* was used as the long handle for collecting *Acacia concinna* fruits. The twigs of *Sida rhombifolia* was used as brooms to sweep their houses. The household has to rely on forest for house building material and household implement since they do not have easy access neither they can afford to pay for their essential from the market (Sarma 2016). The firewood was the only source of energy for the households. *Grewia tiliifolia*, *Artocarpus heterophyllus* and *Mangifera indica* were mainly utilized as firewood. The similar preference was found of the tribes to use *Grewia tiliifolia* as fire wood in Peechi-Vazhani Wildlife Sanctuary (Anitha and

Table 4: NTFP utilized for household activities by the tribes of Western Attappady

S. No.	Item	Local name	Part used	Use
1	<i>Dendrocalamus strictus</i>	Moonka	Stem	Making cattle sheds
2	<i>Helicteres isora</i>	Kavari	Stem	To make coir
3	<i>Ochlandra travancorica</i>	Oda	Stem	Long handle
4	<i>Phoenix loureiroi</i>	Choolpullu	Twigs	To make brooms
5	<i>Sida rhombifolia</i>	Kulamaru	Twigs	To make brooms
6	<i>Artocarpus heterophyllus</i>	Sakke	Dried branches	Firewood
7	<i>Grewia tiliifolia</i>	Chadachi		
8	<i>Mangifera indica</i>	Mave		

Muraleedharan 2002). The Irulas and Mudugas who had job in the farms of the Attappady Farming Cooperation were collecting the firewood from the farm itself.

NTFP for Religious Purpose

Six species was used among the tribes for the religious purposes (Table 5). *Canarium strictum* was used during the occasion of poojas and remaining four species such as *Achyranthes aspera*, *Amaranthus spinosus*, *Aerva lanata* were used for Vishu Kani. The tribes of Western Attappady used the roots of *Catunaregam spinosa* to make a drink for the religious ceremonies. According to their beliefs, the ceremonies and drink would remove the evil spirits and thus diseases got cured. The tribes in Attappady had a custom called *kappa kettal*, for that they used a bunch from the leaves of *Mangifera indica*, *Calotropis gigantea* and *Aerva lanata*. Tribes are of the belief that diseases are caused by evil

spirits and toward them off different rituals were performed by using specific plant twigs, leaves, roots etc. (Razia 2013).

NTFP as a Source of Income

The tribes of Western Attappady collected 20 commercially important NTFP'S for sustaining their livelihood (Table 6). The collection of 18 important NTFP's provided a major source of income for the Kurumbas, who are settled in the interior areas of the forests. The Irula collected nine NTFP species, whereas Mudugas collected 14 species. In many areas, rural populations are traditionally depending on local forest resources to provide additional income through collection and marketing of NTFPs (Melese 2016). The likelihood of harvesting forest products decreased significantly with increasing distance from the forest boundaries (Davidar et al. 2008). All the three communities were involved in the collection of fruits of *Acacia concinna*, tuber of

Table 5: NTFP's used for religious purpose among the three tribal communities

S. No.	Item	Local name	Part used	Use
1	<i>Achyranthes aspera</i>	Irumulli	Twigs	Vishu kani
2	<i>Amaranthus spinosus</i>	Cheera	Twigs	Vishu Kani
3	<i>Aerva lanata</i>	Kallipuvu	Twigs	Vishu Kani
4	<i>Calotropis gigantea</i>	Errukku	Twigs	Vishu Kani
5	<i>Canarium strictum</i>	Tumma	Resin	Pooja
6	<i>Catunaregam spinosa</i>	Kara	Root	A drink

Table 6: The frequently marketed NTFP's by the tribal communities in Western Attappady

S. No.	Item	Local name	Part used	Community involved
1	<i>Acacia concinna</i>	Cheenikka	Fruit	Irula, Muduga, Kurumba
2	<i>Balanophora fungosa</i>	Nilabombu	Whole plant	Kurumba
3	<i>Callicarpa tomentosa</i>	Mulathekku	Root	Muduga and Kurumba
4	<i>Canarium strictum</i>	Tumma	Resin	Muduga and Kurumba
5	<i>Cyclea peltata</i>	Padaberu	Tuber	Irula, Muduga and Kurumba
6	<i>Desmodium gangeticum</i>	Ottaila	Root	Irula, Muduga, Kurumba
7	<i>Garcinia gummigatta</i>	Kudampuli	Fruit	Kurumba
8	<i>Hemidesmus indicus</i>	Nannari	Root	Irula, Muduga, and Kurumba
9	Honey (<i>Apis dorsata</i>)	Then	Honey	Irula, Muduga and Kurumba
10	<i>Mangifera indica</i>	Mave	Fruit	Muduga and Kurumba
11	<i>Phoenix loureiroi</i>	Choolpullu	Twig	Muduga
12	<i>Phyllanthus emblica</i>	Nellikka	Fruit	Muduga and Kurumba
13	<i>Piper nigrum</i>	Kurumulakuvalli	Stem	Kurumba
14	<i>Piper longum</i>	Thippalli	Fruit	Kurumba
15	<i>Pseudarthria viscida</i>	Moovila	Root	Irula, Muduga and Kurumba
16	<i>Sida rhombifolia</i>	Kalamaru	Root	Irula, Muduga and Kurumba
17	<i>Solanum torvum</i>	Chunda	Root	Irula, Muduga and Kurumba
18	<i>Myristica dactyloides</i>	Pathiripoovu	Aril	Kurumba
19	<i>Strobilanthes ciliates</i>	Karinkurinji	Root	Irula, Muduga and Kurumba
20	Wax	Mekku	Honey comb	Kurumba

Cyclea peltata, and roots of *Desmodium gangeticum*, *Hemidesmus indicus*, *Sida rhombifolia*, *Solanum torvum*, *Strobilanthus ciliates*, *Pseudarthria viscida* and honey. The Muduga and Kurumba were involved in the collection of resin of *Canarium strictum*, fruits of *Mangifera indica*, *Phyllanthus emblica* and roots of *Callicarpa tomentosa*. The Kurumba community was involved in the collection of whole plant of *Balanophora fungosa*, stem of *Piper nigrum*, fruit of *Garcinia gummigatta*, *Piper longum*, aril of *Myristica dactyloides* and wax. Only the Muduga community was involved in the collection of the twigs of *Phoenix loureiroi*.

CONCLUSION

The NTFPs have the potential to sustain the livelihood of the indigenous communities. It contributed to the livelihood of the tribes in the form of food, medicine, firewood and as a source of income. Even though the tribes of Western Attappady are making use of 52 NTFPs to meet their livelihood, the knowledge about the edible or medicinal plants are diminishing especially among the younger generation. The knowledge base of the younger generation got restricted to the commercially important species. The less dependency of Irulas and Mudugas settled on the fringe areas on NTFP for food and medicine showed that the culture of consumerism is also getting into the tribes. They prefer buying food commodities from shops rather than collecting the resources from the forest. Among the three tribal groups, the Kurumbas settled in the interior areas of the forest depended the most on NTFPs for food, medicine and as a source of income. The availability of other opportunities (job, hospital, shops) has reduced the dependency on NTFPs among the other tribal groups. So the precious knowledge regarding the utility of the surrounding flora is slowly depleting away from the tribes.

RECOMMENDATIONS

Among the 52 NTFP's used by the tribes of Western Attappady, only 20 NTFP's are commercially exploited. The lesser known NTFP's has to be utilized in a proper manner through developing new marketing channels, propagation techniques and value added products. Thus it can contribute significantly to the income of

the tribes. In case of majority of the medicinal plants used, the roots are the exploitable part. The whole plant is collected for the purpose and the remaining parts get wasted. So studies have to be taken up to ensure better utilization of these unexploited plant parts for the benefit of whole human society. Attention should be given to conserve these forest resources, as we conserve these resources the indigenous communities' lifestyle, culture and valuable treasure of knowledge also get conserved simultaneously.

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