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Leaf threading the future: Examining ethnobotanical and livelihood importance of *Diospyros melanoxylon* in three different regions of India

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Abstract
The present paper attempts to examine ethnobotanical and livelihood importance of Diospyros melanoxylon (Tendu) leaves in three different regions of India *viz*. Bajag area of Dindori district of Madhya Pradesh inhabited by a PVTG named the Baiga, Panchsheel Nagar Beedi Colony in the state of Chhattisgarh inhabited by different caste groups and Turkana Takia Mohalla of Prayagraj in Uttar Pradesh having population composition of Muslims and Hindu Scheduled Castes. The paper is the outcome of rigorous anthropological fieldwork and based on primary data. It also explains the ethnomedicinal importance of tendu plant and its dynamic role in the beedi rolling industry as well as in the livelihood of the studied populations.

Keywords: diospyros melanoxylon, PVTGs, baiga, panchsheel nagar beedi colony, turkana takia, anthropological fieldwork, ethnomedicines

Introduction

Leaf has played very important role since time immemorial in the course of human cultural development. Leaf has been in use in ritual performances in India during Vedic period and well before that several tribal and nontribal communities were using leaves for dining and offerings (naivedyam) made to deities during ritual performances. Leaves are received from several kinds of trees like banyan (Ficus bengalensis), aswatha/peepal (Ficus religiosa), kathal (Artocarpus heterophyllus), juwi (Ficus virens), teak (Tectona grandis), dhak (Butea monosperma), mahua (Madhuca longifolia), sal (Shorea robusta), supari (Areca catechu), banana (Musa paradisiaca) and padma (Nelumbo nucifera) which are used in making patravali, pattal, vistaraku, khali/leaf plates and paper cups/ dona [1] and for writing purpose as taad patra. Tribes like Baiga and many other residing in different parts of India use leaf for religious purpose, sharing food and liquor. Leaf plates made by communities like the Musahars (Scheduled Caste) of Uttar Pradesh and the Musahars (Scheduled Tribes) of Bihar in India under jajmani system, on one side, helped them in maintaining economics of goods and services, on the other, contributed immensely to 'we feeling'- like in Orissa it is widely believed that 'pangat' gives 'sangat' while dining together on the occasion of feasts and celebrations. Archaeological evidence of use of leaf as ware are not well reported, however, the cave painting of Cantabaria in Spain indicate to their importance in past in prior stage to true scientific pottery in neolithic when it came into being. However, reported evidences are less because it is a perishable material. Leaf has always acquired important place in material culture of various societies irrespective of time and space all over the world. For example, material culture of the Nicobarese of Car Nicobar Island includes different kind of baskets and mats which are manufactured using coconut (Cocos nucifera) and supari (Areca catechu) leaves found in abundance on the island. Nicobari huts are thatched with afo/lalang grass (Imperata cylindrical) [2]. Females of Tharu tribe of Uttarakhand, Uttar Pradseh and Bihar made handmade fans with palm leaves which have been once in fashion in medieval Europe. Leaves are on one side important source of material culture on the other, due to their eco-friendly and environment friendly nature these help the society to combat against disastrous effects of environmental degradation caused due to anthropogenic factors. Leaves are also highly important source of livelihood both in rural and tribal areas. First author during his fieldwork among the Todas of the Nilgiri hills in the year 2016 reported that the Todas belong to the camp of PVTGs (Particularly Vulnerable Tribal Groups) and due to their economic disabilities they have to face several deprivations and hardships. In order to overcome their economic constraints, the Toda females regularly visit to Nilgiri hills and collect Eucalyptus leaves which are sold to the producers of world famous steam distilled essential oil known as Nilgiri Tailam/oil highly useful for therapeutic purposes. However, for one gunny sack full of Eucalyptus leaves they are just paid a petty amount of twenty rupees only in return to their full day harsh labour. The author during his fieldwork among another PVTG named as the Bharia of Chhindwara district of Madhya Pradesh in the year 2020 noted that leaves of several plants are used by the tribal people for healing/ethnomedicinal purposes as well as in earning their livelihood apart from other economic pursuits.

Plate 1: Nicobari woman involved in matting

Plate 2: Nicobari couple thatching their hut using coconut leaves

Ethnobotany is a subfield of Botany and a very important and unique branch which describes the interrelationship between ethnic group and vegetation. Ethnobotany also tell to us, how humans belonging to a particular culture and region make use of plants. These plants are used by the people for constructing their houses, food resources, medicine, craft, fiber and as a means of livelihood in the form of minor forest products (MFPs), non-timber forest products (NTFPs) collected from the nearby forest by natives and tribal people. The *Diospyros melanoxylon* is also a very important forest product of central Indian forest and a large number of tribal populations are engaged in collection of the leaves of this tree as these are highly useful non timber produce for them.

Plate 3 & 4: Tendu plant

Diospyros melanoxylon is very popular as 'Tendu' in central India. In English it is famous as 'Ebony' or 'Indian ebony'. This is a tree, which is found in central Indian forests, Madhya Pradesh, Chattisgarh, Jharkhand, Oddisa, Maharashtra. The Tendu tree is also found in the forest composition of Andhra Pradesh, Kerala and Tamilnadu. Tendu is moderate sized deciduous trees up to 25 m length and 2m in girth. Under the natural conditions seeds germinate in the rainy season and seedling reproduction is often plentiful [3]. Its wood is very important and used in agricultural implements, polls, furniture's, sports goods etc. The fruit also important for the tribal people, they use the fruit. An adult tree yield around 80-100 kg of fruits per year [4]. Tendu bark and fruits are good source of tannin and also possess medicinal properties. The flowers of Tendu also used as a medicine in skin diseases and urinary disorders. The Tendu grow naturally in the forest as well as cultivated land. Since it pollards extremely well, pruning the trees is an accepted practice to enable growth new shoots and tender leaves. The tree is a good coppice and produces abundant root suckers. It can be made to grow profusely through artificial injuries to its root.

Plate 5: Ripened fruits of Tendu

system. New leaves come out in two phases: first during March and April, called *Baishakhi* leaves; and second, during October and November called *Kartik* leaves. [5]

Plate 6: Baiga children eating ripened fruits of Tendu [9]

The tribals of India use the various produce of tendu tree but most valuable produce is leaf, which is used to wrap *beedi.* Tendu Leaf (Diospyros melanoxylon) is one of the most important sources of income for rural communities including tribals living near forests in central India and its neighborhood like Odisha and Rajasthan. Around 30-40 million people (mostly women) belonging to the disadvantaged communities in the region are dependent on Tendu leaf collection and also making bidi (country cigarette). Apart from its importance in terms of the employment generated, it contributes substantially to the exchequers of the concerned states. The Tendu Leaves production in India is estimated at around 350 thousand tons worth US $200 million annually, out of which around 90 percent is collected from the central Indian states. Due to its great economic

value as well as social importance, Tendu leaf, also known as the 'golden leaf', can and does influence governments across party lines. While revenue from Tendu leaves accounts for 80 -90% of the total forest revenue, it also provides the second largest avenue for employment, next only to agriculture. More importantly, it provides employment in the agricultural lean season and enables a farmer to earn money for investment in the next agricultural operation. According to "Tendu Leaves in NTFP Enterprise and Forest Governance", a report of FGLG, Madhya Pradesh is the biggest tendu leaf producing state (25% of the country's total production) followed by Chhattisgarh (20%), Odisha (15-20%) and Maharashtra (10%) [6]. Chhattisgarh is a pioneer state of India, producing the best quality tendu leaves. The production of Tendu leaves in Chhattisgarh is approximately 16.44 lacs standard bags annually.

Due to exploitation of the collectors by the traders, the state reserved the rights of collection and trade of the Tendu leaves by declaring the products as a nationalized item, Madhya Pradesh was the first to nationalized tendu leaves collection in 1964 followed by Andhra Pradesh (1971) and Orissa (1973). Madhya Pradesh government distributes 100% benefits to the collectors from the sale of the tendu leaves in form of direct payment as well as bonus. Tendu leaves collection and bidi rolling is estimated to provide 106 million person days of and 675 million person days respectively, which is worth Rs 4515 million [7]. But at the present day this industry facing some threats; according to a report of FGLG, India, published by Center for People Forestry, considered as "sunset" industry, uncertain future due to growing awareness about harmful effects of smoking another point is if FD support in tendu leave procurement is withdrawn, it might again lead to collectors' exploitation.

About Study Area and Populations

Bajag

Bajag is a Tribal Development Block and tehsil of Dindori district of Madhya Pradesh situated at the eastern part of Dindori touching Chhattisgarh state. Bajag is situated amongst herbal-rich Maikal mountain ranges at 22º - 23.22º latitude and 81.21º – 81.20º longitude. It is situated at a distance of 52 kms from district head quarter. The holy river Narmada passes through the Bajag. Spread over an area of 865 sq kms, the block includes 46 gram panchayats and 93 villages. The Baiga, Gond, Kol, Pardhan, Dhoba and Panika are native inhabitants of the Bajag. The Baiga are one of the 75 PVTGs of India who are also known as the "National Human" inhabits it. Out of the total 46 gram panchyats which are under the Bajag janpad panchyats, Chada and Khamera gram panchayats come under the forest department and Jada Bona village of Pipariya Gram panchayat, and Tarach village of Bhursi gram panchayat are forest villages which are included in the study. Total number of forest villages is eight.

Baiga

The Baiga are also known as 'Panda' or traditional healers. The 'Baiga' in the area means a 'priest'. They believe that they are the descendants of mother earth. According to another legend their community descended from a man called 'Naga Baiga'. They are village priest and medicine men. The Baiga are below medium to short-statured with a long and narrow head shape and a flat nose. Their diet consists of uncultivated forest food like roots, fruits and tubers, as well as rice and kodo, kutki, makka, bajra. They are non-vegetarians and eat pork. They eat pulses such as arahar, khesari and masur and the Pej-Bhaji is the most favorite food. They are fond of drinking Mahua liquor [8]. According to Singh (1994) the local dialect called as Parshi bhasa or Gavahi bhasa, a corrupt form of Hindi, is spoken by the Baiga. The Hindi language and the Devnagri script are used for inter-group communications. But the 1961 census reports their mother tongue to be Baigani, a dialect of Chattisgarhi language which belongs to the central group of the Indo-Aryan family of the languages. The Baiga are divided in seven sub groups, namely Bhumia, Binjhwar, Bharotia, Nahar or Narotia, Bhaina, Kodwan, Mudia or Muria. The 'Bhumia' means owner of earth. They believe the god first made the Bhumia Baiga so they called themself Bhumia. Many Baiga are land less, they often collect forest produce like fuel wood and fruits to sell at the markets. As per Census 2011, 51.4 percent of the total populations are worker. Of them 48.7 percent are main workers and 51.3 per cent are marginalized workers. The Bada Dev, Narayan Dev, Thakur Dev, Budhi Mai, Marani Mai, Khero Mai, Dulha Dev and Banjari Mai are the supreme deities of the Baiga community worshiped during time to time where the Baigas use leaves to make offerings to their revered deities. They also worship their ancestors and the village deities are worshiped by Baiga Dewar [9].

Panchsheel Nagar

The state of Chhattisgarh was separated from Madhya Pradesh in the year 2000 and became a new state. The state comprises of a total of 18 districts. Due to higher concentration of beedi workers in the state of Chhattisgarh, it was selected for the study. A primary pilot study was also conducted before major fieldwork in urban and semi-urban areas of the selected district of the state of Chhattisgarh. On the basis of pilot study and data on population, working conditions, wage rates and effect of social welfare schemes within the selected district, an area named as 'Panchsheel Nagar Beedi Colony' located in Tehsil/Block called 'Tifra' was selected for the study. On the basis of Pilot Study and door to door survey, it was found that a total of 288 households inhabited the 'Panchsheel Nagar Beedi Colony' and their population was 1440. Out of these, 212 households were selected where 848 individuals were involved in beedi making process. At least one or two individuals (preferably one male and one female) were selected on the basis of simple random sampling for the research

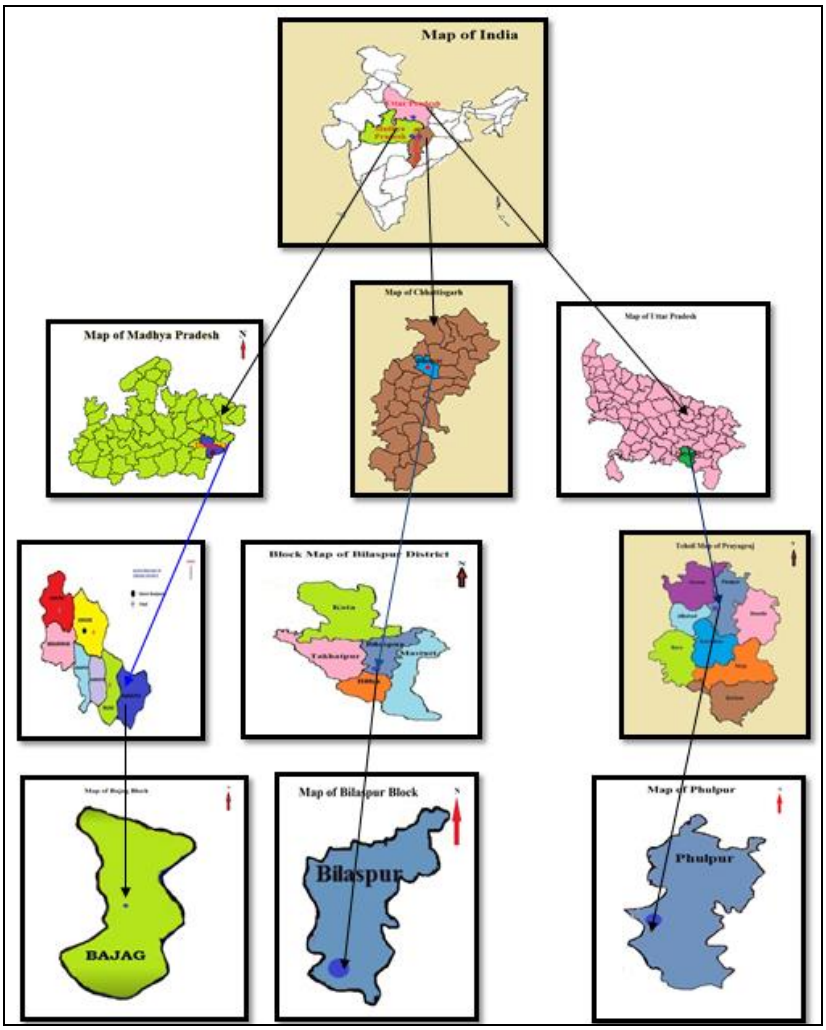
purpose. Thus, total 424 respondents i.e., 380 females and 44 males were selected and included in the study. Number of male members was very less in comparison to females because they left the beedi making industry. The sample included in the study was those who were also of the view that 'leaves' play important role in their livelihood generation. Sample population was a mixed population comprising of different caste groups involved in beedi rolling process [10].

Turkana Takia

Turkana Takia mohalla is peri-urban area of Jhusi Municipal Corporation in the district of Prayagraj (formerly known as Allahabad) in the state of Uttar Pradesh. The mohalla is situated on the bank of the holy river Ganges. There are around 312 Muslim households who constitute the population structure of Turkana Takia apart from 30-40 Hindu households who belong to Scheduled Castes. Applying simple random sampling technique, 100 Muslim households who were involved in the process of beedi rolling were included in the study keeping in view whose earning and livelihood was based on beedi rolling process using leaves [11].

Plate 7 & 8: A female and girl child involved in beedi rolling in Turkana Takia [11]

Location map of the study areas



Map 1: Location map of the study areas

Research Methodology

The study is the outcome of qualitative research methods and anthropological fieldwork conducted by the authors from time to time in different study areas. Primary data was gathered applying an unstructured interview schedule. A survey of vegetations/flora in the study areas was also conducted by second and third authors.

Plate 9: First Author interviewing the subjects at Turkana Takia during Fieldwork

Plate 10: Second Author during Fieldwork at Panchsheel Nagar

Findings and Discussion

Table 1: Ethnomedicinal Uses of Diospyros melanoxylon

S. NO.	Population	Vernacular Name	Ailment	Part Used
1	Tribes of Keonjhar/ Kendujhar district (Bhuiya, Gond, Santal, Juang, Bhumij)	Kendu	Malaria, Diarrhoea, Dysentry	Fruits
2	Baigas (M.P.) & Caste groups of Panchsheel Nagar (CG)	Tendu	Antimicrobial uses	Leaves
3	Baigas (M.P.)	Tendu	Anti-blood clotting agent	Powder of bark
4	Baigas (M.P.) & Caste groups of Panchsheel Nagar (CG)	Tendu	Cough, Indigestion	Leaf extract
5	Baigas (M.P.) & Caste groups of Panchsheel Nagar (CG)	Tendu	Indigestion, Metabolic disorders	Fruits
6	Munda	Tiril	Malaria	Bark
7	Baigas (M.P.) & Caste groups of Panchsheel Nagar (CG)	Tendu	Scabies	Leaves

8	Baigas (M.P.) & Caste groups of Panchsheel Nagar (CG)	Tendu	Wounds	Leaves
9	Baigas (M.P.)	Tendu	Mental Disorders	Powdered seeds
10	Baigas (M.P.) & Caste groups of Panchsheel Nagar (CG)	Tendu	Urinary Disorders	Flowers

Tendu leaves provide source of livelihood to a large number of population nation-wide. Various parts of tendu plant have several medicinal uses also. Forest dwellers look at this plant with awe and reverence due to its medicinal value as well as an important source of their bread and butter. Tribal and non-tribals both pluck the tendu leaves and sell it to nearby local markets. Tendu fruits are collected from forests and sold in local markets by the Baigas. The normal lemon sized ripened tendu fruits having 02 to 04 seeds are sweet in taste and fibrous in nature. Comparatively smaller sized tendu fruits are sour in taste. Another type of tendu which flourishes in hilly terrain is called as Makad Tendu/ Munj Tumir are not eaten as this variety is considered as poisonous in nature. Tendu fruits are rich source of iron, calcium, magnesium, potassium, protein, vitamins and fibers. Various parts of Tendu are used in healing processes by the Baigas and caste groups of Panchsheel Nagar Beedi Colony. Approximately 85% Baigas and 62% caste groups of Panchsheel Nagar are aware of its medicinal value. However, the population of Turkana Takia is not aware of its medicinal value as they only receive dried leaves of tendu from contractor who employs them in beedi rolling/wrapping works.

Economics of Beedi Rolling

Every year, between 750 billion and 1 trillion beedi sticks are smoked in India by nearly 8 percent of the population, which makes beedis twice as popular as cigarettes. Research also shows that death rate among beedi smokers is 64 percent higher than for non-tobacco users. However, unlike the cigarette industry, beedi production and sales remain unregulated. The beedi industry claims insufficient profits as the reason for its unregulated status. According to *Business Standard*, the beedi industry made $1.4 billion more than the cigarette industry in 2016. This estimate is conservative as the lack of regulation provides the industry ample opportunities to underreport their profits. By reporting turnover of less than $29,000, the beedi industry remains exempt from high taxes. According to the World Health Organization, an estimated 3.3 million beedi workers currently are employed by the beedi industry. Only 11 percent of workers are registered, while the vast majority remain unidentified by the government [12].

In terms of providing employment the beedi manufacturing industry accounted for only 7.04% of the entire manufacturing industry. It has been estimated that in 2000-2001, there were 3.56 million workers involved in beedi manufacturing and this fell to 3.32 million in 2010-2011. The number of workers employed in the registered sector varied from 0.4 million in 2000-2001 and 2005-2006 to 0.3 million in 2010-2011. The unregistered sector numbers varied from 3.1 million in 2000-2001 to 4.1 million in 2005-2006 and 2.9 million workers in 2010-2011. In 2011 unregistered workers number was 90.6%. [13] The process of beedi rolling is highly taxing on the workers involved in this industry. The collection and drying of tendu leaves is subject to climatic conditions. Also, making bundles of dried leaves is a tough task as it requires precautionary measures to protect those from breaking. Following plates 9,10,11,12,13,14 reflect upon drying, making bundles, transportation, flaking and beedi rolling process with tendu leaves.

Plate 11: Drying of Tendu leaves

Plate 12: Making Bundles of Tendu leaves

Plate 13: Drying bundles of Tendu leaves

Plate 14: Transportation of Tendu leaves

Plate 15: Flaking of Tendu leaves

Plate 16: Beedi Rolling at Turkana Takia

It is this unregistered sector who is forced to compromise their earnings as they are paid less by the contractors. The payments are not given to them on timely basis as a result of which they even fail to enjoy health services. Majority of the females involved in the process work along with their kids in their lap and hence, their children

also remain in contact of tobacco dust for long working hours. In the state of Karnataka, the minimum rate for 1,000 beedis is much more than in other states. Further north in Madhya Pradesh (MP), minimum wages for beedi workers are the lowest in the country: $1.28 for 1,000 beedis [12].

Beedi rollers face the brunt of exploitation in the hands of contractors as on one side they are paid less than the prescribed national wages on the other they are not paid regularly by the contractors. As they have no alternative resources to earn their livelihood, they are forced to continue in rolling process at the cost of their health. Conditions are comparatively better in the state of Chhattisgarh than Madhya Pradesh and Uttar Pradesh as revealed from the fieldwork in the years 2018 and 2019 in case of payment of wages. In Turkana Takia mohalla, every subject during interview complained regarding lower wages and exploitation at the hands of contractors.

Conclusion

On the basis of this anthropological study and fieldwork conducted in three different regions having different populations, there is a dire need to search for employment alternatives for beedi rollers. Alternatives for livelihood may be explored for people introducing various skill development activities in order to enhance their skills and to attain their economic upliftment and rehabilitation process. Regular and routine health check-ups are recommended by this study for the individuals who are working in the beedi industry. Also, their family members including their children need to undergo regular health assessments.

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References:

1. Kora AJ. Leaves as dining plates, food wraps and food packing material: Importance of renewable resources in Indian culture. Bulletin of the National Research Centre,2019:43:205 https://doi.org/10.1186/s42269-019-0231-6
2. Upadhyay S, Patel R. The Nicobarese: A Tribe in Search of Identity, AIHSD, Lucknow, 2005.
3. Jamil Z, Sharma N. Tendu: An underutilized fruit with vast nutritional and phytochemical potential. Journal of Agricultural Engineering and Food Technology,2019:6(2):171-173.
4. Behra M. Non timber forest products and tribal livelihood: A case study from Kandhmal district Orissa. Indian Forester, 2009, 1127-1134.
5. www.hdsindia.org, 2006
6. Bag H. Tribal right and resource governance: A case of tendu leaf management in the light of FRA, 2006. RCDC occasional series -5, Regional Center for Development Cooperation. Bhuvneshwar, 2012.
7. FGLG, India. NTFP enterprise and forest governance, Andhra Pradesh, Orissa and Madhya Pradesh: Tendu leaves (Diospyros melanoxylon), published by Center for People's Forestry.
8. Singh KS. The Scheduled Tribes. Oxford University Press, New Delhi, 1994.
9. Pal MC.Study of Ethno-Medicinal Aspects Among The Tribal Inhabitants of Bajag Forest of Dindori District, M.P., India (Unpublished PhD thesis), University of Lucknow, Lucknow, 2019.
10. Patel S. An Anthropological Study of Occupational Health Status among the Beedi makers of Chhattisgarh (India). (Unpublished PhD thesis), Department of Anthropology, University of Lucknow, India, 2018.
11. Patel R. Beedi Rollers of Turkana Takiya: A Study with special reference to Occupational Health Hazards and Hygiene. In: National Seminar on Relevance of Medical Anthropology and Tribal Health Care Systems in the Globalizing World, March 16- 18, 2018; Society for Indian Medical Anthropology, Mysore, TRI-Raipur, IGRMS Bhopal, AnSI-Kolkata, 2018.
12. Puri P. Fading Fingerprints of Beedi Workers in India. Pulitzer Centre, 2020. (https://pulitzercenter.org/stories/fading-fingerprints-beedi-workers-india)
13. Arora *et al*. The Indian Bidi Industry: Trends in Employment and Wage Differentials. Front. Public Health, 2020. Sec. Health Economics. (https://doi.org/10.3389/fpubh.2020.572638