



Full Length Research Article

LOOKING BYOND TIMBER: AN APRISAL OF NON-TIMBER FOREST RESOURCES OF PURULIYA DISTRICT OF WEST BENGAL WITH SPECIAL EMPHASIS ON THEIR RELEVANCE IN RURAL LIVELIHOOD

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ABSTRACT

Forest is considered as a storehouse of immense valuable materials and services. Yet, timber overshadows all other forest resources in people's mind perhaps due to its wide acceptance in economic field. Resources like fruits, barks, tuber, honey, leaf, fodder, feather, skin and particularly the medicine supplied by the forests can generate huge revenue if marketed properly. Nonetheless, these lesser forest resources have a great impact in the livelihood of the rural people living in the vicinity of the forest land. Present paper deals with the impact of non-timber forest products on the livelihood of the forest dwellers of Puruliya district, the eastern extension of the old plateau of Chhotonagpur that comes under the administrative set up of the state of West Bengal in India.

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INTRODUCTION

Forests are natural assets of immense explicit and intrinsic values. They can be sustained endlessly, if managed and utilized in an appropriate and justified manner. Forests of a country, if restored at an adequate extent, ideally dispersed, scientifically managed and judiciously utilized, can be kept perpetually productive and useful, conferring many benefits, direct or indirect, on the people. The dawn of humanity undoubtedly began in the ancient forests of this planet. In the *Eolithic* age, some 1,000,000 years ago, primitive men sustained their life on leaves, fruits, roots, bulbs and tubers of various plants found in the dense forests of that time. The evolution of agriculture led to large scale destruction of world forests. Industrial revolution only added vigor to the rampage. With the advent of market economy, forest lands started to be treated as a storehouse of industrial and commercial raw-materials with emphasis on the timber. For last three hundred years huge revenue has generated from the forests worldwide and most of it was made from the trade of quality timbers. Thus it seems like forest resources and timbers are synonymous, at least from the market point of view, although there are so many products and materials other than timber and

fuel wood supplied by the forests with great economic potential. These materials, often called Lesser Forest Products (LFPs) or Non Timber Forest Products (NTFPs) covers a varied collection of goods like honey, wax, fruits, tubers, leaves, skins, feathers, dyes and medicine. These materials not only possess market values, they are integral part of the rural livelihood, especially for the forest dependent communities of the world. So this study attempts to appreciate the importance of NTFPs in rural livelihood in villages of Puruliya, a district of the state of West Bengal in India, that is famous for its forest dwelling communities and their intricate artifacts made from forest products.

The Study Area

Puruliya district demarked the western boundary of West Bengal. It is located between 22°42'23' N to 23°45' N latitudes and 85°45' E to 87° E longitudes. Undulated plains dotted with hillocks and plateaus formed of hard crystalline rocks dominate the landscape. *Damoder, Kangsaboti, Shilaboti* and *Subarnarekha* are four major rivers that drain the region. Slope gradually decreases towards east. Relief almost follows the slope pattern with few exceptions in central, northern and southern parts. Climate is essentially monsoonal with a continental tendency. *Alfisols* are the predominant soil group in the district. The land of Puruliya was once covered under

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thick dry deciduous forest, but now it has been reduced into patches due to excessive human interference. The study district has a total population of 2,930,115. Scheduled castes and Scheduled tribes jointly form 38.56 percent of the district's total population. The district is essentially 'rural' as 87.26 percent of its total population resides in villages. Total literacy rate of the district was merely 64.48 percent in 2011. Workers comprise 44.4 percent of Puruliya district's total population. Among the total workers, only 25.4 percent are considered as main workers (Census – 2011).

Objectives

Present study is based on two objectives

- First objective is to make a detailed appraisal of the Non-Timber Forest Products (NTFPs) found in Puruliya district with special emphasis on the medicinal plants.
- The second objective is to bring out the economic viability of the non-timber forest products found in Puruliya district along with their importance on sustaining the rural livelihood of the forest dependent communities of the district.

MATERIALS AND METHODS

Clearly the first objective insists for an in depth exploration of the forest species, both flora and fauna of the district concerned. It is almost impossible for an individual to cover the entire species variety of the district by his/her own. Thus the written sources, both published and unpublished are considered thoroughly for this matter. Secondary data from the Department of Environment and Forests and the Forest Directorate, Government of West Bengal was of immense help. Working Plans of several forest divisions of Puruliya district deserve mention in this regard. Field verification was done after preparing a chart of the NTFPs found in Puruliya at selected villages of the district that are located either within the forest or in close proximity of the same. To fulfill the second objective a questionnaire schedule was prepared to bring out the perception of the forest dependent communities of the district about the importance of NTFPs, especially the forest medicines, in their life. Survey was conducted in six villages of six administrative blocks of Puruliya district i.e. Barabazar, Balarampur, Baghmundi, Arsha, Raghunathpur I and II. Villages were selected on the basis of their proximity to the forest and the dominance of scheduled caste and/or scheduled tribe people in population composition.

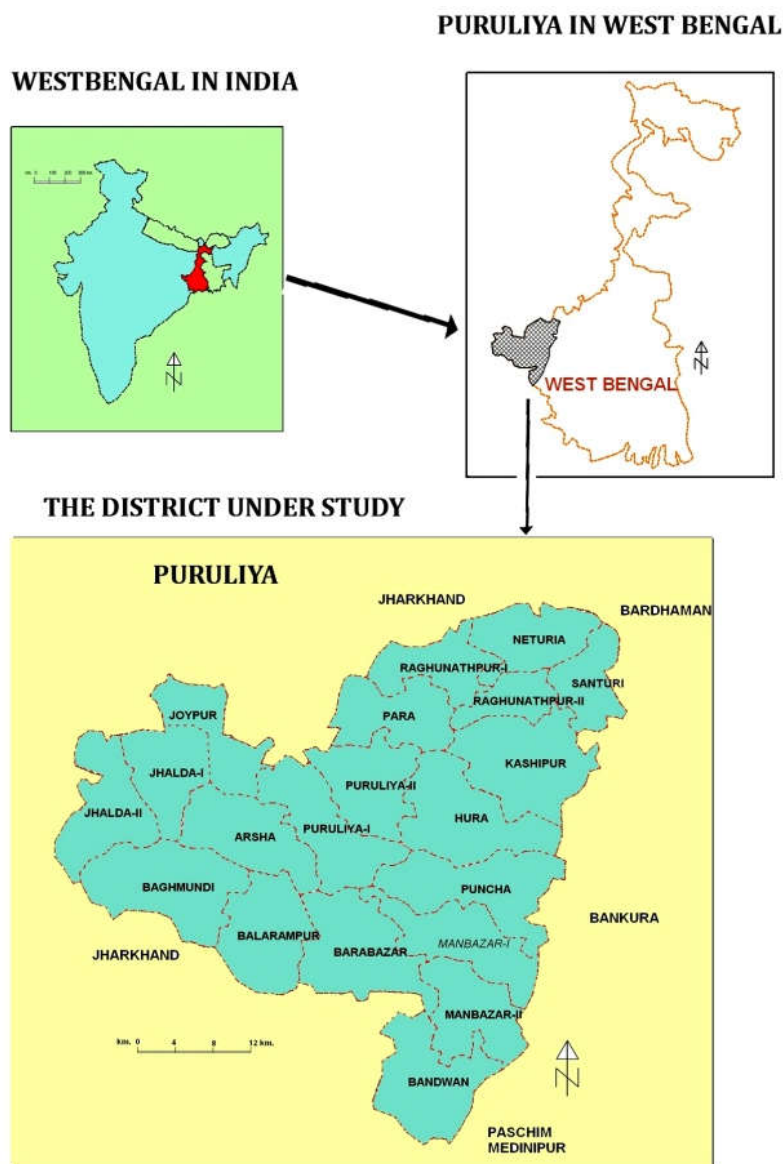


Fig. 1. Location of the study district

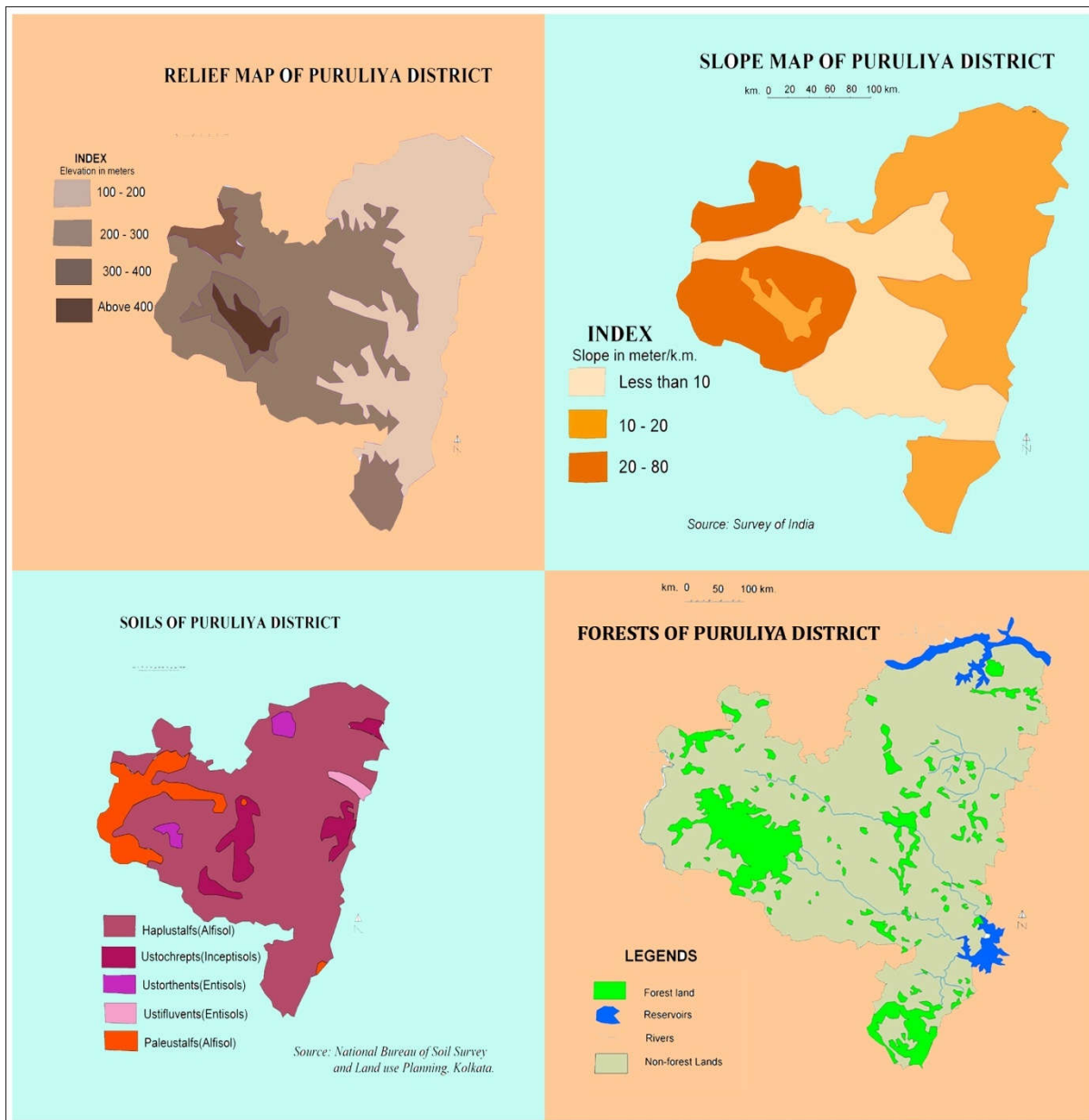


Fig. 2. Physical background of the study district

Total 80 households were surveyed covering 124 respondents, comprising almost 6 percent of the total population of the concerned villages. Array and analysis of the collected primary data and secondary information was done in the post field part of the study. Various cartographic and statistical methods were used to represent the data in acceptable manner.

RESULTS AND DISCUSSION

Forests of Puruliya district comes under “group – 5, tropical dry deciduous forests; sub group – 5, Northern dry deciduous forests, sub type 5B/C1C – Dry peninsular sal- West Bengal lateritic tract” in the classification raised by Chapman and Seth in 1968 (Directorate of forests, Govt. of W.B, 1997). Sal (*Shorea Robusta*) was the dominant tree species of these forests that has been successively changed into assemblage of miscellaneous species like *palash*, *kusum*, *mahua* etc. Generally Edaphic, climatic and biotic factors control the

floral growth and distribution in a region, but in Puruliya district biotic factors play almost deterministic role in floral development (Govt. of W.B, 1997). Human interference has changed the original succession of Puruliya forests to a large extent and reduced their values both in terms of ‘productive’ and ‘protective’ functions. However, at least 82 types of trees, 44 types of shrubs, herbs and weeds, 14 types of climbers and 6 kinds of bamboos and grasses are found in Puruliya district at present (ibid). There are several good quality timbers producing tree species in forests of Puruliya district. Some of them are listed in Table 1.

Non timber forest products: Non timber forest products (NTFPs) include all those materials obtainable from forest, other than wood, and thus comprise wide range of products from vegetable, animal and mineral origin excepts minerals that are under control of Mining Department (Sagreiya, 1994). In other words they are called ‘lesser’ or ‘minor’ forest

products, but in no means their importance, in terms of economy or livelihood, is 'lesser' or inferior to wood products from a forest land. Instead, these NTFPs have direct relation with the forest dependent communities which the 'timber products' may or may not have.

Table 1. Timber producing trees in Puruliya District

Scientific Names	Local Names
<i>Shorea Robusta, Roxb. –</i>	Sal
<i>Tectone Grandis, Linn.F –</i>	Teak or Segun
<i>Dalbergia Sissoo –</i>	Sisso
<i>Albizala Lebbok Durazz –</i>	Shiris
<i>Pterocarpus Marsupium Linn –</i>	Pia sal
<i>Buchanania Laliflora Syn –</i>	Piyal
<i>Adina Cordifolia Salisb –</i>	Haldu or Karam
<i>Gmelina Arborea, Linn –</i>	Gamar
<i>Hardwickia Binata Roxb –</i>	Anjan.

Source: Forest Directorate, Government of West Bengal, 1997

Hence these NTFPs have greater influence on the life of the forest dwellers. Apart from the livelihood function the NTFPs are of great commercial importance. Some of them earn substantial foreign exchange while others give employment to the persons engaged in cottage industries utilizing them. These products with economic viability create the base platform for the forest based industries and thus can help in economic development of the region in and around the forest as well as the whole state. Non timber forest products play an important role in maintaining sustainability of forest ecosystem. All of the NTFPs e.g. honey, wax, resin, gum, leaves or drugs can be collected without cutting the tree or clearing the forest. Thus, harvesting these products do not disrupt forest ecosystem. On the other hand forest based people get alternative opportunities of employment other than logging, lumbering or shifting cultivations that destruct the forests. So, increasing importance on NTFPs ensures protection, conservation and eco-friendly utilization of forest resources, in a long term basis, with provision of employment for the forest dwellers to improve their economic conditions. Thus the goal of sustainable development is achieved.

Forests of Puruliya district are very rich in non timber products. Different types of fruits, flowers, leaves, barks, tan and dyes, essential oils and animal products like lac and tasar silk are found here. Indigenous people of Puruliya are using these materials for their household purposes as well as for commercial reasons from long ago. They have mastered their skill and craft to such a level that some world famous and highly accredited products with aesthetic values are produced here by processing NTFPs through traditional cottage industries, e.g. musk of *Chhou* dance from Charida village in Baghmundi block, bangles, bids and other ornaments and showpieces made of lac in Balaranpur and Sari made of tasar silk in Raghunathpur. Non timber forest products are essentially of two origins i.e. vegetal, like fruits, roots, leaves and medicines etc. and products of animal origin like honey, wax, lac and silk. Some of these NTFPs and their importance are discussed below:

Edible fruits and vegetables

Forests of Puruliya supplies ample quantity of foods when its people, needless to mention their grim economic conditions,

need it most. The months before the harvest time of paddy, the rainy season and the long dry periods of winter, when the meager amount of rice, which they could afford for entire family, tend to finish off looming the fear of starvation, these fruits, roots, tubers and leaves comes as a boon of mother nature. A large variety of fruits, comprised of mango, berries, wood apple, tamarind, jackfruit, *kend*, *piyal*, *mahua*, *kul*, *amla* etc are found in the forests of Puruliya. *Mahua* deserves separate mention. Its flowers and ripe fruits can be eaten directly or in cooked form. Its fruits are widely used in wine preparation. Some vegetables like *banpui*, *jangli potato*, *khamaloo*, *metealoo*, *ban piyaj* and *ban rasun* are widely collected and used in aboriginal families. Apart from the vegetables, there are spices like turmeric, cardamom and wild zinger that grow in the forests and collected by aboriginal people.

Honey and wax

Honey is a good source of animal protein and vitamins. Not only that, they generate great deal of income. Flowery mesophyte species like *flame of the forest*, *mahua*, *sal*, *golgoli*, *shirish*, *shimul*, *kusum* etc and hydrophyts like lotus, water lily etc go in full blossom in spring. That is the ideal time for honey production. Taste, colour and flavour of honey depend on the dominance of blossoming flora within 5 k.m. radius of the bee hive. Not only is the honey, its wax also economically important. Both the honey and the wax are collected by the local people all over the district. The Forest Development Corporation of West Bengal have taken an initiative to market the honey and the wax collected by local people to protect them from the deprivation caused by nexus of middlemen and traders and to ensure maximum economical returns.

Leaves and grasses

Several types of leaves and grasses are collected from the forests of Puruliya district that have both livelihood and economic values. *Sal* leaf is widely collected to make plates that are used in serving food in occasions and ceremonies. *Kendu* leaf is one of the pillars of forest based economy. It is a raw material of *Bidi*, a kind of cigar, processing industry and is exported in large quantities from the district to all over the India. *Elephant grasses* are very tall and generally used as roofing material. *Babui grasses* have good strength and are used in rope making. It is the principal economic activity of *Kheria Shabar* tribe residing in Puruliya. This grass is also a raw material for paper industry. *Kharang* grass is used in making broom while essential oils and herbal insecticides are extracted from *lemon* grass. *Sar* grass is found in relatively low and marshy lands and are use in preparing mats. *Kashi* is another kind of grass that is widely used for making table mats, tea cozier, wall mats, pen holders and several other interior decoration stuffs. Besides, several leaves and grasses are collected as fodders and are the only source of green food for the large cattle population of Puruliya.

Lac: It is a forest product with great economic viability. Lac worms grow naturally over branches and twigs of some trees like *Kul*, *Kusum*, *Palash Dumur* etc. Its cocoon is used as raw material in chemical, paint and varnish industries. Besides, it is also used in handicrafts, ornament manufacturing, book

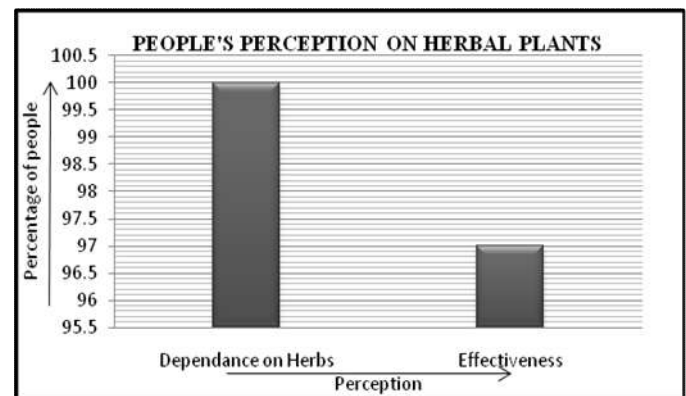
binding and as sealing material. Puruliya district alone supplies 10 percent of India's yearly lac requirement (Rakshit, 2004). Lac processing industry in Puruliya owes its origin long back in the 1897 when Mr. A.M Arathun, an Armenian, first opened a lac processing unit, co-locally termed as '*laksha kuthi*' in Jhalda town. Even before *Arathun*, lac culture was not an alien thing in Puruliya. Tribal aboriginals of this region used to collect and cultivate lac from the forests. According to *Manihar* families of Balarampur town, their family migrated from Lakhnow at the end of twelfth century on invitation of the then king of Balarampur, who actively patronized their traditional business of ornament and handicrafts manufacturing from lac. The *Manihars* still continuing their traditional job, making beautiful bangles, earrings, rings, dolls and various artifacts from lac.

After success of *Arathun*, several lac processing units were established in Puruliya, mainly in Jhalda, Tulin and Balarampur. At the time of India's freedom in 1947, there were several companies owned by foreigners and Indians i.e. *A.M. Jordon and Co*, *Achhchhram Khalkaff Co*, *Locus and co*, *Enjelo Co*, *Madraj Shellac*, *M.P.K.P. factory* etc. (Rakshit, 2004). In 1975 – 1976, lac industry reached its peak in Puruliya district, so the lac cultivation. There were almost 120 to 140 lac processing units operating in Jhalda, Tulin and *Balarampur* alone at that time. But just after that lac industries in Puruliya started to roll down. Most of the '*Kuthi*'s are now locked out and the entire business has touched the bottom line. Only six small scale lac processing units are now running in the entire district. Decline in lac industries have affected the lac-centric economy of Puruliya. Lac production has shown downward trend in last ten years. Although most of the lac production of Puruliya district now comes from cultivated sources, collection of natural lac from forests still acquires considerable position. Generally, collection of lac from the wild is done under supervision of joint forest committees and that is marketed by Forest Development Corporation of West Bengal. Aboriginal people of Puruliya compare lac with gold because of its high demand, not only in India but also in abroad. It has a great potentiality to earn foreign exchanges. In 2001- 2002 India had earned Rs. 4,000 million as revenue from lac trade (ibid). So, this NTFP certainly has great importance in districts' as well as the whole countries' economy.

Silk and *Tasar*: Silk is another non timber forest product of Puruliya district that have high economic value. Larvae of silk worm prefer to reside on some tree species found in the dry deciduous forests like *Kul*, *Kusum*, *Tunt* etc. The cocoon made by the larva is the source of fine silk. However, silk worms grow best on *Tunt* trees and this tree is only available in the relatively humid deciduous forests of *Ajodhya* hills. So, silk was the natural product of those forests only. But now a day, most of the silk cocoons are cultivated. *Tunt* plantations of different sizes are created over the degraded and barren lands to cultivate silk worms. *Ajodhya hills* of *Baghmundi* and *Kapishtha* village in *Kashipur* block are particular two places of importance in this regard. A variant of silk is *Tasar*. *Raghunathpur* town got a long history of *Tasar* cultivation and weaving. *Tasar* larva prefers to build its cocoon in *Sal*, *Arjun*, *Asan* or *Sidha* trees (Mandi, 2004). Forest dwelling aboriginal people mastered the art of collecting *tasar* cocoon from forests

and making fine silky threads. Now most of the *tasar* in Puruliya are cultured. Cultivation of *tasar* worm is generally done over *Arjun* trees and a total 1,100 hectares of barren and degraded land is covered under *Arjun* plantation for this purpose throughout the district. Various government agencies are engaged in expansion and modernization of *tasar* cultivation in Puruliya. At present 3,000 families in the district are earning their bread by this initiative (ibid)

Medicinal Plants: Forests have served human societies as a store house of medicines from a long historical time. British rulers neglected this indigenous medical knowledge in one way and used the immense medical potentiality of tropical forests for development of so called 'modern' medical science on the other. In spite of deliberate ignorance of colonial rulers, the knowledge of extracting and utilization of medicines from herbs, shrubs, roots, barks, fruits, leaves or seeds have been descended down from generation to generation, especially among the forest dwelling tribal peoples of Puruliya. Tropical dry deciduous forests of Puruliya are very rich in medicinal plants. Indeed, most of the trees, herbs and climbers grown in this forest are used, in part or full, as medicine. Among the 45,500 government approved herbal plants in India, more than hundred varieties are found in the *Panchet* and *Ajodhya* hills of Puruliya district (Goswami, 2004). Forest dwelling scheduled castes and scheduled tribe communities in Puruliya are still very much dependant on herbal medicines collected from nearby forests. A survey among the villagers living in close proximity of forests in six blocks of Puruliya district i.e. *Barabazar*, *Balarampur*, *Baghmundi*, *Arsha*, *Raghunathpur I* and *II*, revealed that, apart from the level of development, distance from the town and availability of modern medical facilities, age and educational level, hundred percent of the respondents opined that they very much rely on the herbal medicines that are collected from nearby forests. Almost the same percentage of people described those herbal medicines very effective that can heal or cure the diseases with guarantee.

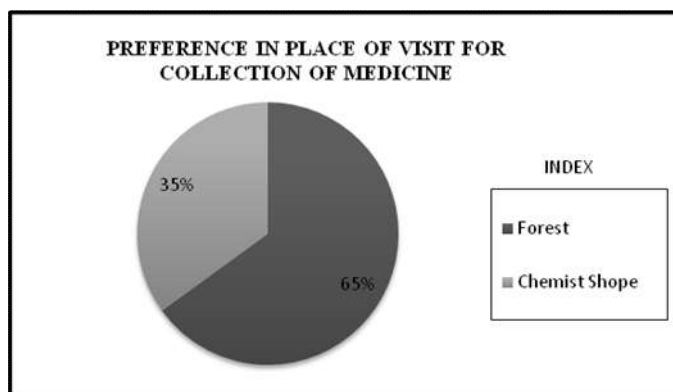


Source: Primary data

Fig. 3.

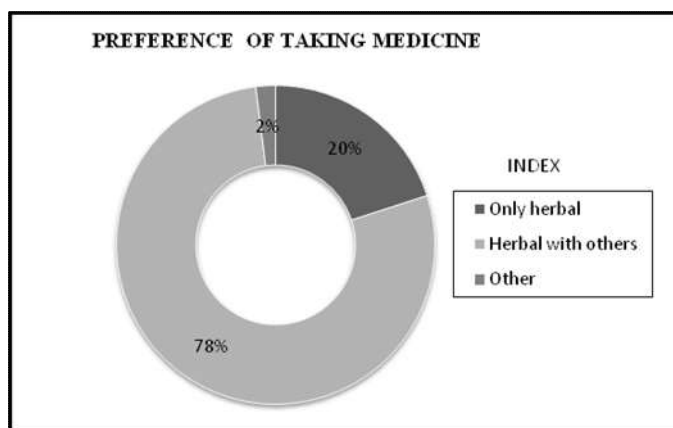
A considerable 65 percent of the respondents prefer to visit the forest instead of chemist shop when they need medicine and almost 20 percent of them strongly denied to take any other kind of medicines when they are ill. Some of the common plants used by the villagers, in part or whole, and their common uses are as follows –

- **Nim (*Azadirachta Indica*):** It is a very common tree of Puruliya and found in almost every village. *Nim* has enormous medicinal value as its leaf, bark, flower



Source: Primary Data

Fig. 4.



Source: Primary data

Fig. 5.

and fruits are used as medicines. It is a blood purifier and used in the treatment of diabetes, jaundice, eczema and recurrent fevers.

- **Tulsi (*Osimnum Spp.*):** *Tulsi* or Basil is a very common herb. Leaves of this small plant is excellent disinfectant. It is used in treatment of cough and cold, stomach ailment and mouth ulcers.

- **Arjun (*Terminalia Arjuna*):** Bark of this tree is used as medicines and commonly used as anti chest ronchitis. Besides, it is also used as medicine of tuberculosis and heart ailment.
- **Amlaki (*Emblica Officinalis*):** It is a plant with high medicinal value. Its fruit is known as 'Necter fruit' among the aboriginals for its medicinal utility. Green fruits of *Amlaki* are used as a decongestant and antipyretic drug. Seed dust is used in lucoria. It is also used in treatment of urinary infections. Once very common tree of plains, *Amlaki*, is now becoming rare and can only be found in hilly tracts of *Ajodhya* and *Panchet* region.
- **Haritaki (*Terminalia Chebula*):** Commonly found in the hilly regions of the district and used in reliving constipation, nausea and kidney stones.
- **Bahera(*Terminalia Belrica*):** It is a common tree in Puruliya and its dry fruit is used as medicine to treat various kinds of worms. It is also useful in general cough and asthma.
- **Sarpagandha (*Rauwolfina Serpentina*):** This is a very precious herb and it is being used for more than four thousand years in India. In Puruliya this small herb is found in the highest parts of the hills. Its roots, soot, seed and flower is used in preparation of various kinds of medicines to treat different gynecological diseases. It is also used in controlling blood pressure and to treat mental diseases.
- **Basak (*Adhatoda Vasika*):** It is a very common herb and found in abundance all over Puruliya district. Its leaf is a superb medicine for cough and cold, bronchitis and several other lung diseases.
- **Anantamul (*Hemisdesmus Indicus*):** Found in the forests of *Matha*, *Ajodhya* and *Panchet*, this herb is highly valuable one and its root is used in treatment of mouth ulcer, amibiosis, dysentery etc. It is also used in treatment of several sexual diseases.
- **Satomul (*Asparagus Racemosus*):** This precious plant is found in the forests of *Panchet* hills and have wide spread uses in medical science. Locally it is used in treatment of several gynecological and sexual diseases.

Apart from the above mentioned, there are numerous plants, herbs, shrubs, climbers and grasses found in Puruliya that have medicinal use. A short description of those medicinal floras along with their uses is enlisted in Table 2.

Table 2. Non timber forest products found in Puruliya district

Sl. No.	Common Name	Botanical Name	Parts used	Uses
1.	Amlaki	<i>Emblica officinalis</i>	Fruit	Food and Medicine
2.	Anatamul	<i>Hemisdesmus indicus</i>	Root	Medicine
3.	Arjun	<i>Terminalia arjuna</i>	Bark	Medicine
4.	Asan	<i>Terminalia tomentosa</i>	Bark	Medicine
5.	Atibala	<i>Abutilon hirta</i>	Root, Seed	Medicine
6.	Akasara	<i>Schrebera Swieteniosa</i>	Root, leaf Bark	Medicine
7.	Apang	<i>Achyranthus aspera</i>	Plant	Medicine
8.	Bahera	<i>Terminalia belerica</i>	Fruit	Medicine
9.	Banpui	<i>Basella spp.</i>	Plant	Food
10.	Basak	<i>Adatoda Vasica</i>	Leaf	Medicine
11.	Bel	<i>Aegle marmelos</i>	Fruit	Food and Medicine
12.	Bhalukshukti	<i>Oroxylum indicum</i>	Bark, fruit, root	Medicine
13.	Bhela	<i>Semecarpus anacardium</i>	Bark, fruit	Medicine
14.	Bruru	<i>Gardenia gummifera</i>	Bark, leaf, buds	Medicine
15.	Bankuthi	<i>Atylosia Scarabaeoides</i>	Whole plant, seed	Medicine
16.	Bankapas	<i>Thespesia lampus</i>	Bark, root, fruit	Medicine
17.	Berela	<i>Sida cordifolia</i>	Root, bark	Medicine
18.	Baola	<i>Dioscoria alata</i> <i>D. bulbifero</i>	Root	Medicine

.....Continue

19.	Banpiyaj	<i>Allium sposios</i>	Bulb	Medicine
20.	Ban rasun	<i>Allium ampeoolprasun</i>	Bulb	Medicine
21.	Barangi	<i>Clerodendron serratam</i>	Stem and root	Medicine
22.	Bhringaraj	<i>Wedalia Calendulacia</i>	Whole plant	Medicine
23.	Bhuikumra	<i>Lpomea digitata</i>	Root	Medicine
24.	Chatian	<i>Alstonia sholaris</i>	Bark	Medicine
25.	Cashew	<i>Bhakardium occiderntale</i>	Seed	Food
26.	Climbers	<i>Bauhenia Panniculata</i>	Leaf	Making ropes
27.	Dhaw	<i>Anogeisises latifolia</i>	Bark	Medicine
28.	Dudhilata	<i>Oxistelma esculata</i>	Plant	Medicine
29.	Ghetu	<i>Clerodendron infortunatum</i>	Flower	Medicine
30.	Haritaki	<i>Terminalia Chebula</i>	Fruit	Medicine
31.	Harjora	<i>Cissus repandsa</i>	Leaf, Stem	Medicine
32.	Iswarjata	<i>Aristolochia indica</i>	Root	Medicine
33.	Kalmegh	<i>Andrographis panniculata</i>	Stem, leaf	Medicine
34.	Karanj	<i>Pongamia pinnata</i>	Seed	Oil
35.	Kend	<i>Diospyros melanoxsylan</i>	Leaf, Fruit	Making Bidi, Food
36.	Kharang	<i>Aristida spp.</i>	Grass	Making Broom
37.	Khair	<i>Acacia catechu</i>	Heart wood	Use in eating pepper, Medicine
38.	Kedar	<i>Ochna Pumila</i>	Root, Stem	Medicine
39.	Keoa	<i>Costua speciousus</i>	Root	Medicine
40.	Kontikory	<i>Solanum xanthocarpum</i>	Root, Whole plant	Medicine
41.	Mashroom (Karni chhatu)	<i>Termitonyces spp.</i>	Whole part	Food
42.	Mashroom (Kurkure Chhatu)	<i>Astreans spp.</i>	Whole part	Food
43.	Kul	<i>Ziziphys jujube</i>	Fruit	Food
44.	Kurchi	<i>Holarrhaena antidycenterica</i>	Bark	Medicine
45.	Kurkut	<i>Ant Larvea</i>	Whole part	Fish Bait
46.	Kulekhara	<i>Hygrophila spinnosa</i>	Plant	Medicine
47.	Lenti	<i>Phyllanthus disticus</i>	Root	Medicine
48.	Jangli Potato	<i>Potato dioscoria spp.</i>	Bulb	Food
49.	Mahul	<i>Modhuca indica</i>	Flower, fruit	Country Liquor
50.	Minjiri	<i>Cassia Siamea</i>	Leaf-rachis	Stitching
51.	Mahadebjata	<i>Urarialagopoides</i>	Flower	Medicine
52.	Neem	<i>Azadirachta indica</i>	Leaf, Seed	Medicine Insecticide
53.	Nisinda/Begna	<i>Vitex negunda</i>	Leaf	Medicine
54.	Peasal	<i>Pterocarpus marsupium</i>	Bark	Medicine
55.	Peal	<i>Buchanania latifolia</i>	Fruit, Bark, seed	Medicine Making jam and jelly
56.	Parasi	<i>Cleistanthus collinus</i>	Leaf, Root, Capsules	Medicine Insecticide
57.	Parul	<i>Stereospermum</i>	Root	Medicine
58.	Panjan	<i>Ougenito ojinensis</i>	Bark	Medicine
59.	Ramdantan/Kumarilata	<i>Smilax zeylanica</i>	Root	Medicine
60.	Rairui	<i>Ventilago maderaspatana</i>	Leaf, Bark, Seed	Medicine
61.	Rali	<i>Piper longum</i>	Stem	Throat Medicine
62.	Sal	<i>Shorea robusta</i>	Leaf Seed Resin	Making Plate Oil Fragrant
63.	Simul	<i>Boimbux ceiba</i>	Flosses	Gum
64.	Sarpagandga	<i>Rauwolfia sarpentina</i>	Rhizome, Root	Medicine
65.	Satamul	<i>Asparagus racemossa</i>	Root	Medicine
66.	Seuli	<i>Nyctanthes arbortristis</i>	Root, Seed	Medicine
67.	Somraj	<i>Vernonia antheimintica</i>	Root	Medicine
68.	Tulsi	<i>Ocimum spp.</i>	Leaf	Medicine
69.	Talmul	<i>Carculigo orchioides</i>	Stem	Medicine

Source: Forest Directorate, Government of West Bengal, 1997

Conclusion

The discussion can be concluded by stating that forests are very important natural resources that serve humankind by several means. Puruliya district is very rich in terms of forest resources; especially the lesser forest resource that imparts huge influence in the livelihood of the poor and marginal people living in and around forests.

Still there is a considerable biodiversity left in the district's forests but they must be preserved effectively to sustain the productivity of the forest. The forest ecosystem is facing several disorders that are rendering detrimental effects on the system's productivity threatening the sustenance of the rural subsistence in Puruliya. In this situation earnest effort to save the forest resources of the district is needed and it cannot be done without incorporating the aboriginal people of the district in the policy making process.

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