AN ASSESSMENT OF NON TIMBER FOREST PRODUCTS OF JHARGRAM DIVISION

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Introduction

Non Timber Forest Products (NTFPs) covers all products other than major forest produce including timber, small wood and fuel wood. NTFPs include fodder, tans and dyes, grasses, fibre and flosses, essential oils, gums and resins, lac, honey, silk, oil seeds, medicines, edible products, decorative materials, animal and mineral products found in the forests. People living in and around the forests mainly depend on these products. NTFPs are recognized as commercially more viable option in forest management (Anderson, 1990; Anon., 1990; Blay, 1996; Chakravarthi, 1990; Goday and Bawa, 1993; Peter *et al.*, 1989; Pandit *et al.*, 2004. For the survival of mankind maintenance of forest ecosystem is very important. Quite long time in past Indian forests were managed for commercial extraction of valuable timber to fetch a good amount of revenue by clear felling and artificial regeneration of system of silvicultural management. The habitat structure of forest area and many important species became homeless. But this practice changed quickly and present concept of forest management is to harvest important timber species as well as sustainable collection of NTFPs and marketing thereof by poor fringe villagers who are primarily dependents on the forest based resources for their livelihood (Agarwal, 1992; Chandrasekharan, 1996; FAO, 1990, 1993). A controlled sustainable properly managed collection of NTFPs without causing much disturbances to the vegetation can improve socio economic condition of economically backward class people who reside in surrounding forests.

Study area

Jhargram Forest Division is situated in the south-western most part of West Bengal, falls under civil sub division Jhargram under Paschim Medinipur district. It lies between 21°52' and 22°48' north latitudes and 86°34' and 87°20' east longitude approximately bordering with adjoining Jharkhand and Orissa States. On the north, it is bordered with the civil districts of Purulia and Bankura, on the east, bordered by river Kangsabati, on the south bounded by Kharagpur division and on the east bordered with Orissa and Kharagpur Division. The total forest area under this Division is 62,500 ha consisting of 12 territorial forest ranges, 36 beats, 480 Joint Forest Management Committees (JFMCs) with 40703 families protecting 52,179 ha covering 83% of the total forest area of the division (Pandit, 2010).

Vegetation and Flora

According to champion and Seth's revised classification, the forest of study area falls under major group II - Dry Tropical Forests, group 5 - Tropical Dry Deciduous Forests, sub-group 5B - Northern Tropical Dry Deciduous Forests, Type C - Dry sal bearing forests, sub type C1c - Dry Peninsular Sal Forests. Sal coppice forests consists of majority of the area where sal almost found as pure forest. The top storey associates are Peasal (*Pterocarpus marsupium*), Mahua (*Madhuca indica*), Kend (*Diospyros melanoxylon*), Kusum (*Schleichera oleosa*), Asan (*Terminalia tomentosa*), Challa (*Holoptelea integrifolia*), Bhelai (*Semecarpus anacardium*), Kumbhi (*Careya arborea*), Haldu or Karam (*Adina cordifolia*), Parasi (*Cleistanthus collinus*), etc. which occur in abundance. In hilly portion of the north-west of the division some other species are found abundantly like Sidha (*Lagerstromia parviflora*), Piyal (*Buchanania lanzan*), Bahera (*Terminalia bellerica*), Dhaw (*Anogeissus latifolia*), Palash (*Butea monosperma*), Setisal (*Dalbergia latifolia*), Rahara (*Soymida febrifuga*), Haritaki (*Terminalia chebula*), Amlaki (*Enblica officinalis*) and *Sterculia* species, etc.

The undergrowth of forest comprises shrubs like Kurchi (*Holarrhena antidysenterica*), Bhurur (*Gardenia gummifera*), Putli (*Croton oblongifoliu*), Bainchi (*Flacourtia cataphracta*), Dhadki (*Woodfordia fruticosa*), Pind Khejur (*Phoenix acaulis*), Kul (*Ziziphus jujuba*), Atari (*Combretrum decandrum*), Sarpagandha (*Rauvolfia serpentina*) are important. Grasses which present in small quantities are *Themeda* sp., *Pollinia* sp., *Desmostachya* sp. and *Andropogon* sp. *etc.* The common climbers are *Butea superba, Dioscorea* spp., *Smilax* spp., *Vitis assamica, Spatholobus* sp., *Mucuna* sp., *Abrus precatorius* and *Milletia* sp., etc. Paschim Medinipur district as well as Jhargram forest division are very rich in ethno medicinal plants and found that 96 plants are used to treat veterinary disorders (Pandit, 2010) and 90 plants are used to treat 'Gynaecological disorders' by tribal people (Pandit and Bhakat, 2009).

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Non Timber Forest Products

Non timber forest products of Jhargram division consists of forest products like edible plant parts, medicines, fibres and flosses, tans and dyes, gums and resins, edible oils, essential oils, fodder, decorative materials etc., which mainly collected by local villagers for their livelihood since time immemorial. Actually number of NTFP varies with the richness of vegetation of an area. NTFPs also include some animal products like silk, tassar, lac, honey, etc., which are not restricted by Wildlife (Protection) Act, 1972.

Out of total villagers reside in fringes a fair quantities are totally depended on forest based resources for their livelihood. Major population of Jhargram sub division belongs to economically backward classes and option of alternative livelihood programme is limited so interferences by local villagers, JFMC members on natural resources are tremendous. More than one third of local population of study area belongs to SC and ST groups (Anon., 2005).

Although collection of NTFPs from Jhargram division is regular phenomenon for the livelihood of local villagers but no such study was carried out to assess the availability, quantification, time of collection, marketing procedure, etc., aspects. Present author has made an attempt to carry out a survey during the year 2007-08 to identify some of the important NTFPs which were collected and marketed by JFMC members and other local villagers.

Method of Survey

The work is having a number of aspects like recognition, quantification and market survey.

(a) *Recognition of NTFPs*: This is recorded through direct observation by staff and JFMC members in study area and also in local markets. Samples were collected from the field or from the local market and then identified by experienced staff, JFMC members in the field or after making herbarium sheets.

(b) *Quantification*: JFMC members, NTFP collectors, local villagers, forest staff, middle man, local NTFP traders and dealers were interviewed and cross interviewed again and again to ascertain the approximate quantity harvested in different ranges.

(c) *Market survey*: It was done by direct survey method by questioning the NTFP collectors, forest staff, middleman, local stockist, retailer, JFMC members and others who could provide some reliable information.

Results and Discussion

During present study, total 85 NTFP items including their botanical name, family, parts used, time of collection, availability per annum, specific uses, time of collection, sale price to middle man were identified (Annexure - I). It has been found that these NTFPs were also collected by JFMC members for their own household use or sold to middleman for their livelihood. These NTFPs are utilized as medicines, fodder, edible oil, decorative, dyes and some other purposes. Main plant parts used are fruit, seed, flower, bark, leaf, root, rhizome, stem etc. Different parts of same plants are used for different purposes. It was observed that maximum uses of these NTFPs are medicinal purposes.

Taxonomic distribution of NTFP plants

Jhargram Forest Division is very rich in biodiversity. Out of total 85 NTFPs collected maximum (82) are plant origin and rest three tasar gooti, ant nest and termite nest are animal origin.

It has been found that identified 82 NTFP products (plant resources) belong to 38 families, 56 genera and 64 species. These plant species belong to dicotyledons, monocotyledons and thalophytes. Habit class wise 64 plant species consist of trees (43), shrubs (10), herbs (06) and climbers(05). It represents almost all strata in the vegetation which are supplying NTFPs in Jhargram division.

The taxonomic distribution of NTFP producing plant species of Jhargram division is represented in Table 1.

Table 1

Taxonomic distribution of NTFP producing plant species in Jhargram Division.

Taxa	Numerical presentation		
	Families	Genus	Species
Dicotyledon	31	48	55
Monocoty ledon	06	07	08
Thalophyte	01	01	01
Total	38	56	64

Diversity of NTFPs

A reasonable quantity of NTFPs are regularly collected by JFMC members from the vegetation of the division having diverse type of uses which is given in the following table (Table 2).

It has been found that greater proposition of plants have multiple uses. Plants like *Terminalia* sp., *Shorea*

Table 2

Diversities of NTFPs in Jhargram Division.

Sl No.	Diversity of uses	No. of species	Sl No.	Diversity of uses	No. of species
i)	Medicinal uses	53	xi)	Rolling bidi	01
ii)	Decorative articles	04	xii)	Incense stick	01
iii)	Fodder plants	03	xiii)	Tooth paste	01
iv)	Edible plants	11	xiv)	Basket making	02
v)	Thatching	01	xv)	Mat	02
vi)	Leaf plate making	01	xvi)	Hand fan	01
vii)	Oil	08	xvii)	Broom	01
viii)	Local liquor	01	xviii)	Dye	01
ix)	Cloth making	03	xix)	Rope	01
x)	Gum	01	xx)	Bait of fishing	02

robusta, Holarrhena antidysenterica. Strychnos nux vomica, Aegle marmelos, Azadirachta indica, Acacia sp., *Madhuca indica, Phoenix* sp. are of multiple uses. Maximum quantity collected was sal leaves which are used to make different type of biodegradable plates having great demand in villages as well as town in present age of plastic pollution. Sal resin, have also reasonable commercial value and sal seeds are used to produce high quality edible fat. Collection of sal seeds is no harm at all but collected quantity is negligible in terms of production. Most probably thick undergrowth is the main cause of poor collection of sal seeds. Sal leaves are collected mainly by women folk of JFMC members, sun dried, hand or machine stitched and sold to local middleman. They then sold it to local dealers who stored these in go down for marketing. Hand stitched leaf plates are sold locally as well as distributed to different dealers of other rural places where it has great demand as it is cheaper than machine made plate. For machine made plate, local dealers send hand or machine stitched plates to dealers of Orissa. It is a quiet good amount of business and reasonable numbers of JFMC members are dependent on that trade.

Twig, bark, stem, leafy shoot, inflorescence, seed, fruit, root, rhizome leafs, lac, gum are collected regularly ands some part are used in household purposes. Balance unprocessed quantities are sold in local market or to local NTFP dealers who ultimately supply it to the metropolitan city based traders, stockists or dealers. Some materials after processing even sold it to export market.

Range wise quantification of NTFPs

Out of available 85 NTFPs, quantification of 33 products is possible and rest are unknown. Range wise quantification of NTFPs of Jhargram division is given in Table 3.

It has been found that maximum quantity of collection was of *Shorea robusta* leaf (14500 qtl.) followed by *Diospyros melanoxylon* leaf (2900 qtl.), *S. robusta* seed (505 qtl.), *Madhuca indica* flower (500 qtl.), *Madhuca indica* seed (300 qtl.), *Andrographis paniculata* plant (133 qtl.), Edible mushrooms (125 qtl), *Terminalia myriocarpa* seed (105 qtl.), *Alangium lamarkii* twig (100 qtl), *Terminalia indica* fruit (100 qtl.), *Symplocos racemosa* bark (88 qtl.), *Terminalia bellerica* fruit (65 qtl.), *Diospyros melanoxylon* fruit (50 qtl), *Ichnocarpus frutescens* plant (29 qtl.), *T. chebula* fruit (23 qtl.), *Gardenia gummifera* fruit (22 qtl.), *Holarrhena antidysenterica* seed (20 qtl.), Bakhar root (12 qtl), *Schleichera oleosa* fruit (11 qtl), *Woodfordia fruticosa* flower (10 qtl) *Hemidesmus indicus* (10 qtl), *Asparagus racemosus* root (8 qtl.), *Buchanania lanzan* fruit (6 qtl.), *Soymida febrifuga* fruit (6 qtl.), *Oroxylum indicum* bark (5 qtl.), *Croton* sp twig (4 qtl.), *Aegle marmelos* fruit (4 qtl.), *Semecarpus anacardium* fruit (4 qtl.), *Dioscorea* sp tuber (3.5 qtl.), *Emblica officinalis* fruit (2.5 qtl.), *Azadirachta indica* seeds (2 qtl.), *Aristolochia indica* root (1.0 qtl.) and Tassar gooti (0.5 qtl.).

Considering the Range wise quantification of NTFPs during study period, it was observed that out of 33 NTFPs maximum numbers were quantified in Banspahari Range (28), followed by Bhulaveda (27), Belpahari (24), Jhargram (24), Gopiballavpur (19), Lodhasuli (15), Shilda (11), Jamboni , Gidhni and Hatibari (10 each), Parihati and Manikpara (9 each).

Maximum quantify of NTFPs collected in Belpahari (3364 qtl) followed by Jamboni (3342 qtl.), Lodhasuli (2177 qtl.), Manikpara (1618 qtl), Bhulaveda (1522.5 qtl.), Shilda (1377 qtl), Gopiballavpur (1287 qtl), Gidhni (1241 qt.), Jhargram (1213.5 qtl), Banspahari (1210 qtl), Parihati (979 qtl) and Hatibari (318 qtl). Basically Range wise total quantity depends upon the collection of sal leaves because individual item wise highest collection is done in this product. During study period 19699 qtl. i.e. 1969.9 MT NTFPs was collected by villagers or JFMC members out of which sal leaf constitute 74%.

Table 3

Range wise quantification of some major NTFPs .

NTFPs collected	Parts used	Range wise approximate quantity in quintal												Total quantity in qtl
		Bans pahari	Bhulaveda	Belpahari	Shilda	Parihati	Gidhni	Jamboni	Jhargram	Lodha suli	Manik para	Gopi ballav pur	Hati bari	
Shorea robusta	Leaf	500.0	400.0	1500.0	1200.0	900.0	1100.0	3200.0	800.0	2000.0	1500.0	1100.0	300.0	14500.0
Diospyros melanoxylon	Leaf	400.0	600.0	1300.0	100.00	40.0	70.0	60.0	100.0	40.0	40.00	110.0	40.0	2900
Mushrooms	Entire body	8.0	11.0	12.0	9.0	7.00	8.0	7.00	15.0	12.0	25.0	8.0	3.0	125.0
Terminalia chebula	Fruit	10.0	4.0	2.0	1.0	-	-	-	1.0	3.0	-	2.0	-	23.0
T. bellerica	Fruit	15.0	4.0	7.0	3.0	3.0	5.0	5.0	7.0	8.0	3.0	3.0	2.0	65.0
Madhuca indica	Flower	60.0	110.0	140.0	25.0	5.0	10.0	30.0	35.0	40.0	15.0	25.0	5.0	500.0
Madhuca indica	Seeds	40.0	60.0	110.0	15.0	8.0	17.0	10.0	12.0	10.0	6.0	7.0	5.0	300.0
Gardenia gummifera	Fruit	5.0	8.0	7.0	-	-	-	-	2.0	-	-	-	-	22.0
Semecarpus anacardium	Fruit	1.0	1.0	2.0	-	-	-	-	-	-	-	-	-	4.0
Andrographis paniculata	Whole plants	45.0	40.0	45.0	-	-	-	-	1.0	1.0	-	1.0	-	133.0
Hemidesmus indicus	Root	2.0	3.5	1.5	-	-	-	-	1.0	1.0	-	1.0	-	10.0
Asparagus racemosus	Root	1.5	2.0	1.5	-	-	-	-	1.0	1.0	-	1.0	-	8.0
Schleichera oleosa	Fruit	2.5	3.0	2.5	1.0	-	-	1.0	-	-	-	1.0	-	11.0
Dioxpyros melanoxylon	Fruit	6.0	9.0	6.0	2.0	2.0	3.0	4.0	5.0	5.0	2.0	4.0	2.0	50.0
Ichnocarpus frutescens	Whole plants	4.0	10.0	6.0	-	-	8.0	-	-	-	-	1.0	-	29.0
Terminalia myriocarpa	Seeds	35.0	55.0	15.0	-	-	-	-	-	-	-	-	-	105.0
Shorea robusta	Seeds	35.0	100.0	180.0	12.0	7.00	10.0	15.0	100.0	35.0	20.0.	12.0	5.0	531.0
Symplocos racemosa	Bark	8.0	80.00	-	-	-	-	-	-	-	-	-	-	88.0
Buchanania lanzan	Seed	1.0	2.0	1.0	-	-	-	-	1.0	-	-	1.0	-	6.0
Soymida febrifuga	Fruit	2.0	2.0	2.0	-	-	-	-	-	-	-	-	-	6.0
Aegle marmelos	Fruit	2.0	-	-	-	-	-	-	2.0	-	-	-	-	4.0
Holarrhena antidysenterica	Seed	5.0	3.0	4.0	-	-	-	-	2.0	2.0	-	3.0	1.0	20.0
Oroxylum indicum	Bark	3.0	1.0	1.0	-	-	-	-	-	-	-	-	-	5.0
Woodfordia fruticosa	Flower	5.0	2.0	3.0	-	-	-	-	-	-	-	-	-	10.0
Shibjata	Whole plants	3.0	1.0	-	-	-	-	-	-	-	-	-	-	4.0
Croton sp. (Putla jhanti)	Twig	-	-	-	-	-	-	-	5.0	-	-	-	-	5.0
Dioscorea sp.	Tuber	0.5	0.5	0.5	-	-	-	-	2.0	-	-	-	-	3.5
Aristolochia indica	Root	-	-	-	-	-	-	-	0.5	-	-	-	-	0.5
Tamarindus indica	Fruit	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0
Emblica officinalis	Fruit	0.5	0.5	-	-	-	-	-	1.0	-	-	0.5	-	2.5
Azadirachta indica	Fruit	-	-	-	-	-	-	-	1.0	-	-	-	-	1.0
Bakhar	Root	-	-	-	-	-	-	-	4.0	8.0	-	-	-	12.0
Alangium lamarkii	Twig	10.0	10.0	15.0	9.0	7.0	10.0	10.0	15.0	11.0	7.0	6.0	5.0	115.0
Tassar gooti		-	-	-	-	-	-	-	-	-	-	0.5		0.5
Total		1210.0	1522.5	3364.0	1377.0	979.0	1241.0	3342.0	1213.5	2177.0	1618.0	1287.0	368.0	19699.0

The Market

The market of NTFP is quite unstable and fluid not only in this region but throughout the entire country. West Bengal Forest Department has small price list not covering all materials and also insufficient to deal with the present situation. Local middlemen purchase the NTFPs from JFM members at very low rate. They then sold the collected desired NTFPs to local stockists / dealers who have their own godown. Actually local middleman purchased NTFPs from JFMC members according to the target fixed by local stockists / dealers who again guided by metropolitan city based big traders. Actually NTFP related big trades are controlled by city bases big traders like Kolkata of West Bengal and other cities of Orissa, Bihar and Jharkhand state who also exported some NTFPs. Most of the NTFPs have no fixed price and government price so it is basically sold against a bargained price. Prices of many NTFPs are unknown and during survey it was not possible to ascertain the rate. During survey it has also been noticed that primary collector collected NTFPs from forests adjoining state Jharkhand and Orissa. It has also seen that most of the medicinal materials were ultimately supplied to different pharmaceutical companies at very high price which already proves that primary collectors are deprived. Some time adulterant materials are also supplied to Pharma-companies. On survey it is revealed that average monthly income of primary collector is ₹ 1000-1500/- and for middleman varies from ₹ 5000-15000/-. Rainy season is generally dull period and January to April is the best period of collection on the basis of availability. It is noticed that maximum local NTFP dealers are concentrated on two major areas like Banspahari-Belpahari and Gopiballavpur-Chandabila. On few occasions primary collectors took permission from Division office for collection of NTFPs as well as transit pass to transport collected NTFPs.

It transpired from discussions with old and experienced JFMC members, dealers, Baidyas and other traditional healers that some NTFPs which were existed abundantly in the study area but now the distributions are limited due to over exploitation. Some such plants are *Rauvolfia serpentina. Asparagus racemosus, Abroma angusta, Tragia involucrata, Aristolochia indica, Sida rhombifolia, Solanum xanthocarpum,* etc. Some important species which have commercial importance are *Emblica officinalis*, (fruit) *Terminalia chebula* (fruit), *T. bellerica* (fruit), *Buchanania lanzan* (fruit), *Saraca asoka* (bark), *Abroma angusta* (bark), *Litsea glutinosa* (bark), *Sida* sp. (root), *Rauvolfia serpentina* (root), *Hemidesmus indicus* (Root), *Aristolochia indica* (root), *Asparagus racemosus* (root), *Shorea robusta* (leaf), *Diospyros melanoxylon* (leaf) etc.

Management of NTFP collection

At present there is no proper control over collection of NTFPs in Jhargram Division. JFMC members and other villagers collected these according to their own use as well as demand of middleman or local NTFP dealers in unorganized, unscientific and unsustainable way. If these kinds of trends persist, some plants might be lost their abode due to over exploitation. So to save some important plants from their extinction in near future and for proper livelihood of JFMC members following strategies of sustainable way of collection, scientific management of forests may be adopted.

(a) Establishment of proper collection practice

(b) Development of proper storage, processing and transport facilities

(c) Use of improved technologies

(d) Planting of indigenous species having NTFPs values.

(e) Establishment of records of inventory regarding the available area, quantification, phenology of NTFP species, time of collection, etc.

(f) Fixation of price of all available NTFPs.

(g) Establishment of well organized set up to control over the whole things to check over exploitation, issuing permits, regulating markets, etc.

(h) Imparting training to stake holders.

(i) Collection of germ plasm, storage and improvement both in *in-situ* as well as *ex-situ*

Conclusion

Jhargram Forest Division is a small forested area but there are wide forested areas of adjoining Purulia, Bankura District and Jharkhand State. The present knowledge regarding availability of NTFP, its quantification, marketing, proper utilization, sustainability etc. is quite poor with limited control of state forest department. Inventory, recognition, area wise availability, quantification, scientific collection for sustainable production and market surveys are the most important factors for proper utilization of large amount of forest based natural resources. Although JFMCs are formed and they have given certain rights on collection of some NTFPs but no systematic control mechanism developed. Now it is the time to take proper decision at appropriate level to formulate suitable strategies for sustainable exploitation of NTFPs in Jhargram Division as well as entire south West Bengal as to the tune of several million rupees trades are related with NTFP collection.

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SUMMARY

A survey has been conducted in Jhargram Division of West Bengal for the availability, type and quantity of NTFPs. A total of 85 NTFPs are identified which includes plants of different habit groups, occupying different strata and types of vegetation. Range wise quantification of 33 products has been done. Although NTFPs are collected for different uses like domestic utility, marketing but its maximum use is for medicinal purposes. Different plant parts of same plant are used for different purposes. Prices of available 85 products have been ascertained. Identification of commercially important plants has been done. All marketed NTFPs are purchased by city based pharmaceutical companies or other dealers from local dealers. Although collection of NTFPs is related to livelihood of JFMC members and associated with business of several million rupees however, only a little control mechanism over their collection, storing, marketing, etc. was found.

Key words : NTFPs, Domestic utility, Marketing, Jhargram.

झाड़ग्राम मण्डल की गैर-प्रकाष्ठ वनोपजों का एक आंकलन

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सारांश

झाड़ग्राम में मिलने वाली गैर प्रकाष्ठ वनोपजों की किस्म और मात्रा जानने के लिए एक सर्वेक्षण संचालित किया गया। कुल मिलाकर 85 गैर-प्रकाष्ठ वनोपजों की पहचान की गई। जिनमें भिन्न-भिन्न प्रवृति वर्ग वाले पादप सम्मिलित हैं, जो विभिन्न स्तरों और वनस्पति -प्ररूपों में यहाँ पाए जाते हैं। 33 उपजों का परिक्षेत्रानुसार मात्रांकन भी किया गया है। यद्यपि गैर प्रकाष्ठ वनोपजों का संग्रह विभिन्न उपयोगों के लिए जैसे घरेलू उपयोग, विपणन किया गया है परन्तु देखा यह गया है कि इनका अधिकतम उपयोग चिकित्सीय प्रयोजनों के लिए ही किया जाता है। एक ही पादप के भिन्न-भिन्न भाग विभिन्न प्रयोजनों में उपयोग किए जाते हैं। उपलब्ध होते 85 उत्पादों की कीमतें भी पता लगाई गई है। जिन पादपों का व्यापारिक उपयोग हो सकता है उनकी पहचान की गई है और उनके लिए विशेष सावधानी बरतने की जरूरत है। बाजार में विक्रेय सभी गैर-प्रकाष्ठ वनोपज नगरों में स्थित औषध-निर्माण कंपनियों अथवा अन्य दुकानदारों द्वारा स्थानीय लोगों से खरीद ली जाती है। हांलाकि गैर-प्रकाष्ठ वनोपजों का संग्रह संयुक्त वन प्रबन्ध परिषदों के सदस्यों की आजीविका से जुड़ा हुआ है ओर अनेक लाख रूपयों के व्यवसाय से सम्बन्धित है उनके संग्रह, भण्डारण और विपणन पर कुछ नियन्त्रण विधि अपनाई जाती दिखाई पड़ी।

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Annexure 1

List of Non Timber Forest Produces found in Jhargram Forest Division

Sl. no	Scientific name	Local name	Family	Parts used	Specific uses	Time of collection	Sale price to middleman /qt in ₹	Availability
1	2	3	4	5	6	7	8	9
1	*Holarrhena antidysenterica*	Kurchi bij	Apocynaceae	Seeds	Medicine	Dec.-Jan.	1500-2000/-	C
2	*Buchanania lanzan*	Pial bij	Anacardiaceae	Seeds	Medicine	Apr.-May	1200-1500/-	LC
3	*Strychnos nux-vomica*	Kuchla bij	Loganiaceae	Seeds	Medicine	Dec.-Jan.	1200-1300/-	LC
4	*Schleichera oleosa*	Kusum bij	Sapindaceae	Seeds	Oil	May-Jun.	600-700/-	LC
5	*Pongamia pinnata*	Karanj bij	Papillionaceae	Seeds	Oil	Mar.-Apr.	500-600/-	C
6	*Madhuca indica*	Mahua bij	Sapotaceae	Seeds	Oil	May-Jun.	900-1000/-	VC
7	*Shorea robusta*	Sal bij	Dipterocarpaceae	Seeds	Oil	Apr.-May	300-400/-	Ab
8	*Syzigium cumini*	Jam bij	Myrtaceae	Seeds	Medicine	Jun.-Jul.	550-600/-	CC
9	*Terminalia bellerica*	Bahera phal	Combretaceae	Fruits	Medicine	Mar.-Apr.	200-300/-	C
10	*Emblica officinalis*	Amlaki phal	Euphorbiaceae	Fruits	Medicine	Dec.-Jan.	1500-1700/-	C
11	*Terminalia chebula*	Haritaki phal	Combretaceae	Fruits	Medicine	May-Jun.	500-600/-	C
12	*Aegle marmelos*	Bel phal	Rutaceae	Fruits	Medicine	Feb.-Apr.	400-450/-	LC
13	*Madhuca indica*	Mahua flower	Sapotaceae	Flowers	Edible, local liquor	May-Jun.	300-500/-	VC
14	*Cassia fistula*	Bandarlathi phal	Caesalpineaceae	Fruits	Medicine	Aug. to Dec.	500-600/-	C
15	*Abrus precatorius*	Kunch phal	Papillionaceae	Fruits	Medicine	Mar.-Apr.	2000-2200/-	LC
16	*Azadirachta indica*	Neem phal	Meliaceae	Fruits	Medicine, oil	May-Jun.	350-400/-	C
17	*Feronia elephantum*	Kaitbel phal	Rutaceae	Fruits	Edible, fodder	May-Jun.	1200-1500/-	LC
18	*Soymida febrifuga*	Rahara phal	Meliaceae	Fruits	Medicine	Mar.-Apr.	1200-1400/-	LC
19	*Terminalia myriocarpa*	Asan phal	Combretaceae	Fruits	Oil	Apr.-May	600-700/-	VC
20	*Diospyros melanoxylon*	Kendu phal	Ebenaceae	Fruits	Edible	Mar.-Apr.	700-800/-	LC
21	*Phoenix sylvestris*	Khejur	Arecaceae	Fruits	Edible	Apr.-May	500-700/-	VC
22	*Semecarpus anacardium*	Bhelai phal	Anacardiaceae	Fruits	Medicine, oil	Feb.-Mar.	800-900/-	LC
23	*Ziziphus* sp	Kul	Rhamnaceae	Fruits	Edible	Jan.-Mar.	400-500/-	VC
24	*Spondias pinnata*	Amra phal	Anacardiaceae	Fruits	Edible	Jul.-Sept.	900-1100/-	LC
25	*Strychnos nux-vomica*	Kuchla phal	Loganiaceae	Fruits	Medicine	Dec.-Jan.	1200-1300/-	LC
26	*Tamarindus indicus*	Tentul phal	Caesalpineaceae	Fruits	Edible	Mar.-May	400-500/-	C
27	*Bixa orellana*	Nata phal	Bixaceae	Fruits	Medicine	Sept.-Dec.	2000-2200/-	LC
28	*Bombyx mori*	Tasar gooti	Bombycidae	Cocoon	Silk cloth	Jul.-Aug.	1700-1900/-	LC
29	*Terminalia bellerica*	Bahera antha	Combretaceae	Gum	Making raw cloth	Nov.-Jun.	1000-1100/-	C
30	*Shorea robusta*	Sal dhup	Dipterocarpaceae	Gum	Making cloth	Nov.-Jun.	800-1000/-	VC
31	*Terminalia myriocarpa*	Asan antha	Combretaceae	Gum	Gum	Dec.-Jun.	900-1000/-	C
32	*Soy mida febrifuga*	Rahara chhal	Meliaceae	Bark	Medicine	Dec.-Apr.	450-500/-	LC
33	*Gmelina arborea*	Gamar chhal	Verbenaceae	Bark	Medicine	Nov.-Jun.	300-350/-	C
34	*Holarrhena antidysenterica*	Kurchi chhal	Apocynaceae	Bark	Medicine	Feb.-Mar.	400-450/-	LC
35	*Azadirachta indica*	Neem chhal	Meliaceae	Bark	Medicine	Feb.-Jun.	350-400/-	C
36	*Symplocos racemosa*	Lodh chhal	Symplocaceae	Bark	Medicine	Sept.-Oct.	800-850/-	LC
37	*Terminalia arjuna*	Arjun chhal	Combretaceae	Bark	Medicine	Sept.-Mar.	300-350/-	VC
38	*Mimusops elengi*	Bakul chhal	Sapotaceae	Bark	Medicine	Sept.-Mar.	1100-1300/-	C
39	*Alstonia scholaris*	Chhatim chal	Apocynaceae	Bark	Medicine	Octo.-Mar.	600-700/-	C
40	*Strychnos nux-vomica*	Kuchla chhal	Loganiaceae	Bark	Medicine	Octo.-May	500-600/-	LC
41	*Oroxylum indicum*	Bhaluksukti chhal	Bignoniaceae	Bark	Medicine	Jan.-Feb.	600-700/-	LC
42	*Saraca asoca*	Asoke chhal	Caesalpineaceae	Bark	Medicine	Nov.-Mar.	4000-4500/-	LC
43	*Acacia* sp	Babla chhal	Mimosaceae	Bark	Medicine	Dec.-Apr.	350-400/-	LC
44	*Abroma angusta*	Ulatkambal chhal	Sterculiaceae	Bark	Medicine	Feb.-May	850-1000/-	LC

contd...

Sl. no	Scientific name	Local name	Family	Parts used	Specific uses	Time of collection	Sale price to middleman /qt in ₹	Availability
1	2	3	4	5	6	7	8	9
45	*Holarrhena antidysenterica*	Kurchi chhal	Apocynaceae	Bark	Medicine	Feb.-Mar.	600-700/-	C
46	*Litsea glutinosa*	Ledha chal	Lauraceae	Bark	Making insence stick	Jan.-Apr.	2000-2200/-	LC
47	*Calotropis gigantea*	Akanda mul	Asclepiadaceae	Root	Medicine	Jan.- Mar.	400-500/-	C
48	*Rauvolfia serpentina*	Sarpagandha mul	Apocynaceae	Root	Medicine	Nov.-Mar.	4000-4500/-	LC
49	*Cassia occidentalis*	Kalkasunde mul	Caesalpineaceae	Root	Medicine	Octo.-Dec.	800-900/-	C
50	*Sida rhombifolia*	Swet berela mul	Malvaceae	Root	Medicine	Nov.-Mar.	500-600/-	LC
51	*Aegle marmelos*	Bel patta	Rutaceae	Leaves	Medicine, hair oil	Mar.-Nov.	1000-1200/-	VC
52	*Eucalyptus* sp	Eucalyptus patta	Myrtaceae	Leaves	Medicine	Whole year	400-500/-	C
53	*Acacia sp*	Babla patta	Mimosaceae	Leaves	Medicine,f odder,tooth paste	Apr.-Nov.	800-900/-	LC
54	*Vinca rosea*	Nayantara	Apocynaceae	Whole plant	Medicine	Mar.-Jun.	850-1000/-	VC
55	*Ficus religiosa*	Aswatha patta	Moraceae	Leaves	Medicine, fodder	Apr.-Nov.	600-700/-	Ab
56	*Vitex negundo*	Nishinda patta	Verbenaceae	Leaves	Medicine	May-Octo.	850-1000/-	VC
57	*Ziziphus* sp	Kul patta	Rhamnaceae	Leaves	Medicine, fodder	Nov.-Dec.	1100-1200/-	VC
58	*Diospyros melanoxylon*	Kend patta	Ebenaceae	Leaves	Making bidi	Feb.-Apr.	1100-1300/-	Ab
59	*Shorea robusta*	Sal patta	Dipterocarpaceae	Leaves	Leaf plate	Apr.-Dec.	750-1000/-	Ab
60	*Azadirachta indica*	Neem patta	Meliaceae	Leaves	Medicine, edible	Feb.-Nov.	600-700/-	VC
61	*Borassus flabellifer*	Tal patta	Arecaceae	Leaves	Mat, handfan, roofing	Whole year	**	C
62	*Phoenix sylvestris*	Khejur patta	Arecaceae	Leaves	Mat, broom	Whole year	600-700/-	VC
63	*Feronia elephantum*	Kaitbel patta	Rutaceae	Leaves	Medicine	Whole year	700-800/-	LC
64	*Alangium lamarkii*	Atari Jhanti	Alangiaceae	Twig	Basket making	Apr.-Dec.	300-400/-	VC
65	*Asparagus racemosus*	Satamul	Asparagaceae	Root	Medicine	Aug.-Nov.	6000-7000/-	LC
66	*Hemidesmus indicus*	Anantamul	Asclepiadaceae	Root	Medicine	Aug.-Sept.	900-1100/-	C
67	*Scindapsus officinalis*	Gajpipul	Areceae	Whole plant	Medicine	Whole year	2200-2400/-	LC
68	*Tragia involucrata*	Bichuti	Euphorbiaceae	Whole plant	Medicine	Throughout the year	1000-1200/-	LC
69	*Solanum xanthocarpum*	Kantikari	Solanaceae	Whole plant	Medicine	Dec.-Jan.	200-300/-	C
70	*Andrographis paniculata*	Kalmegh	Acanthaceae	Whole plant	Medicine	Sept.-October	300-400/-	VC
71	*Ichnocarpus frutescens*	Dhudilata	Apocynaceae	Whole plant	Medicine	Aug.-Jan.	2000-2200/-	C
72	*Aristolochia indica*	Iswarmul	Aristolochiaceae	Root	Medicine	Aug.-Dec.	2500-3000/-	LC
73	*Curculigo orchioides*	Talmuli	Amarillidaceae	Root	Medicine	Jul.-Octo.	**	C
74	*Croton* sp	Putla jhanti	Euphorbiaceae	Whole plant	Decorative	May-Jul.	300-400/-	C
75	*Acacia auriculiformis*	Akasmoni	Mimosaceae	Dry fruits	Decorative	Whole year	300-400/-	Ab
76		Shibjata		Whole plant	Decorative	Sept.-October	800-1000/-	LC
77	*Dioscorea* sp	Kham alu	Dioscoreaceae	Rhizome	Edible	Jan.-Feb.	1200-1400/-	VC
78		Mushroom		Whole plant	Edible	Jul.-Sept.	1700-2000/-	C
79	*Polyporus* sp	Kath chhatu	Polyporaceae	Whole plant	Decorative	Jul.-Octo.	1000-1200/-	VC
80	*Woodfordia fruticosa*	Dhadki phul	Lythraceae	Flower	Medicine	Jan.-Mar.	1300-1500/-	C
81	*Butea monosperma*	Palas phul	Papillionaceae	Flower	Medicine, dye	Jan.-Mar.	900-1100/-	C
82	*Gardenia gummifera*	Bhurrur	Rubiaceae	Fruits	Edible	Aug.-Sept.	600-800/-	VC
83		Termite nest			As a bait of fishing	Jan.-Nov.	1100-1300/-	VC
84		Ant nest			As a bait of fishing	Feb.-Nov.	1400-1600/-	LC
85	*Eulaliopsis binata*	Sabai	Poaceae	Leaves	Making roap	Octo.-Mar.	600-800/-	C

** Local consumption

Abbreviation used: Ab= Abundant, VC = Very Common, C = Common, LC = Less Common.