

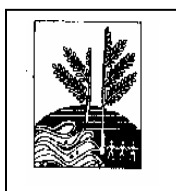
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**Output Potentiality of Select Non-Wood Forest Products of Orissa**  
**And**  
**Its Implication on the Livelihood of the Primary Collectors**

**BIKASH RATH**

**JULY 2002**

**Partially revised: April 2005**



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## **PREFACE**

Millions of tribal and non-tribal people have been depending on various non-wood(non-timber) forest products both for their sustenance as well as house-hold use and as such, the importance of these products in their livelihood are widely recognised. In fact, it is for this reason that policy workers have criticised the decision of the govt to call a number of such products as MFP(minor forest produce) items since it has been their feeling that using the term ‘minor’ would actually reduce both the importance the NTFPs as well as the govt’s responsibility in their context.

Among the common and widely discussed NWFPs are the Kendu(*Diospyrus melanoxylon*) leaves, Mahua(*Madhuca indica*) flowers/seeds, Char(*Buchanania lanzan*) seeds, Myrobalans, Sal (*Shorea robusta*) leaves and Siali(*Bauhinia vahlii*) leaves, etc.. However, there are some other items also which have hardly come to the limelight. The present compilation is an attempt to discuss the implications of the output potentiality of a few such ignored items on the livelihood of the primary collectors and is supposed to provide the relevant details despite a number of limitations.

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## INTRODUCTION

### *Objective of the research:*

The objective of this research was to understand in what way the output potentiality of certain less-discussed (but significant) items has influenced the livelihood of forest-dependant primary collectors. Besides that, the study was also expected to be useful in two more ways, *viz*;

1. To apprise if any of the items taken for the study can form the basis of promoting SHGs.
2. To verify if some of the items given to the Panchayats have now been more beneficial in the livelihood of the primary collectors (after becoming a free-trade item within the state).

Moreover, the study was also expected to highlight the status of women *vis-à-vis* the whole affair.

### *Methodology:*

Information was collected in three ways:

1. Personal communication with experts, social workers, traders and primary collectors.
2. Official interaction with institutes/departments/organisations like the Botanical Survey of India.
3. Secondary references.

Sites for case studies were selected on the basis of the potentiality area and/or the availability of the primary collectors.

The statistical figures furnished in the report are, in general, approximate unless otherwise stated since it has not been possible to arrive at accurate figures in many cases. In case of the potentiality figures of Anantamul, Glutinous bark and Arjun bark, assumptions of experienced lease holders have been compared with the ground situation and the figures have been finalised accordingly.

Livelihood analysis was done on the basis of maximum/average collection capacity of an item per day verses maximum/average income per day from the same item. The maximum/average income per day was then compared with the minimum daily wage (Rs. 50/- in 2002).

It would have been more appropriate if the report could be based on a detail state-wide survey involving interaction with various concerned stake holders, but both time - and financial constraints were the major limitations because of which this could not be achieved. Still, some field observations also formed an essential part of the methodology adopted and helped in the cross-verification of various claims/conclusions.

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## **PART: I**

### **Output Potentiality of Select NWFPs**

**GLUTINOUS BARK**

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Pojo is the Santhal name of *Litsea monopetala*. Otherwise known as Medha, this species has its commercial equivalent as *Litsea glutinosa*, often known under the same name as Pojo.

Both these species can reach a height of more than 20 metres. They are evergreen trees usually found near water bodies with a smooth bark of greyish shade. This bark is balsamic or glutinous and is a major raw material in Agarbatti industries.

The Khadia tribals of Shimlupal recognize three different varieties of Pojo on the basis of their bark character, viz.,

<i>Local name</i> <sup>1</sup>	Popular name	Grade of bark	Other characters
Reshunia (female)	Kala Pojo	I	Originally cream – coloured inside, the bark turns black soon after its exposure & hence the name.
Reshunia (male)	Lal Pojo	II	Bark more or less of fleshy red colour. Doesn't turn black on exposure to the extent shown by the Kala Pojo.
Athla	Balia Pojo	III	Resembles the Gr.II variety, but causes itching sensation in the body. The bark-paste feels like having sand grains in it & hence the name.

A commercial equivalent(of higher grade) of these two species is *Persea macrantha*, also an evergreen species belonging to the same family (*Lauraceae*). This plant can also grow up to 24 meters, but its bark is pale brown with darker spots (bark of *L. monopetala* also some times looks pale brown, but it exfoliates). Natural habitat of this species is the high altitude rain forests of Western Ghats in South India and the major lines of distinction of it from the *Litsea* counterparts are as follows:

<i>Characters</i>	<i>Litsea glutinosa</i>	<i>L. monopetala</i>	<i>Persea macrantha</i> (?)
Inflorescence	Insignificant(length) as compared to that of <i>P. macrantha</i>	Insignificant(length) as compared to that of <i>P. macrantha</i>	Flowers in long inflorescence.
Wood (in young trees)	Yellowish grey to yellowish brown	Yellowish or Olive-grey to brownish	Reddish-white to reddish-brown
Bark	Pale brown, roughish, somewhat corky, lenticellate	Pale brown, roughish, somewhat corky, exfoliating in quite small polygonal scales	Rough; pale brown with darker spots
Fruits	Black (when ripe)	Black	Dotted with white on deep green background.

<sup>1</sup> Reference books on the flora of Orissa do not help us in the botanical identification of all these three varieties; rather, a recent study conducted by the scholars of Utkal University has suggested that the trees may actually belong to an altogether different species of *Phoebe* and that, *Lal Pojo* may be *Phoebe wightii*(*per com.* Sri Rabindra Kumar Mishra). From our interaction with the experts, it seems that a detail study of this problem is yet to be undertaken. The lacuna is reflected, for ex., in Vol. VI of *Wealth of India* wherein it has not been mentioned that the bark of *Persea/Machilus macrantha* and *Litsea glutinosa/monopetala* have so much demand in the Agarbatti industries, although the volume has been reprinted twice, latest in 1998.

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A few decades ago, when the Agarbatti industries of India were mostly centred in or around Bangalore (Karnataka), their demand for the glutinous bark was mostly met from the local supplies of *Persea macarnta* bark which yields *Jigat*, a binding material. But with increasing demand and decreasing supply of *Jigat*, the situation became critical and besides imports of *Jigat* @ 1500 tonnes / year<sup>2</sup> (early 1990s), dependency on similar bark materials also increased gradually & hence was the pressure on *Litsea* species in Orissa increased more or less suddenly towards the end of 1980s. As Sri N.D. Pyne, a former lease holder of Baripada told us: “I first came to know about this profitable bark in 1989 at Kolkata .At that time, it was being collected from Assam. I showed the sample to the local forest dwellers of Shimlipal and they brought me different varieties which were rejected by the Kolkata dealers. At last a Kolha man brought what was subsequently approved by the Kolkata traders as the right thing and the source tree being identified as Pojo, I applied for its lease.”

*Local names*<sup>3</sup> : Pojo (Mayurbhanj), Hathna (Dhenkanal), Jaisondha, Moshanea, Mashani chhali, Garudagovindo & Amini (Khurdha & Nayagarh districts), Deshona<sup>4</sup> (Phulbani), Kuradhia (Keonjhar) and Tangia chhali(Koraput), etc.

*Trade name*: Ledha chhali / Medha / Maida lakdi

*Seasonality and method of harvesting* : The bark is available almost throughout the year, but harvesting is minimised during the rainy season when drying the bark is difficult. Debarking is done usually with the help of axe.

*Utilisation*: The most important use is in the Agarbatti industry. The bark powder, when added to the charcoal (and other ingredients like Jhuna, Guggul etc.) binds the latter to the Bamboo stick. If the binding is not stronger, the Agarbatti can not sustain itself & the barks of *Persea macrantha* as well as *Litsea glutinosa/monopetala* achieve this perfectly.

*‘What’s (not) in a name ?*

Some four/five years ago, a local club of Thakurmunda (near Karanjia) opposed the collection practices of Pojo on the plea that its effect on forest was destructive. The lease holder ‘convinced’ them that what they collected was not Pojo chhali but Medha Chhali & that, he had departmental permission for that. The members of the club were convinced by this clarification and managed to receive Rs. 500/- from the lease holder as donation for their club. Incidentally, the leader of this ‘movement’ was a local staff of the Orissa Forest Development Corporation, but it is surprising to know that he and his followers just failed to understand that Pojo & Medha were different names of the same species.

<i>Varieties of glutinous bark</i>				
<b>There are four varieties recognised on the basis of their area of production as well as the binding capacity for the charcoal mixture. These are as follows (per com. Sri Govind Agrawal &amp; Sri Nathumal: 2002):</b>				
Variety	Nature of bark	Binding capacity (charcoal mixture to bark powder ratio)	Wholesale price/ Kg(dry bark)	Grade
Karnataka ( <i>Persea macrantha</i> ?)	‘Sweet-scented’(?), brown-coloured & thin	Very high (9:1)	± Rs. 50	1
Chindwara (MP)	Whitish & thin	High (6:1)	± Rs. 30	2
Orissa (two varieties although the general quality is considered to be quite good)	Thick(more thickness means more wood content which is not preferred).	Medium (3:1 or 4:1)	±Rs. 25	3
Orissa	Thin	High (6:1 or 5:1)	± Rs. 30	2
Assam	Reddish (both thin & thick varieties found at the same price)	Medium to low (4:1 or 3:1)	± Rs. 15	4

Brahmam, *L. glutinosa* has also been mentioned as Debassandha i.e., having the same pronunciation. Else where, it has been mentioned that *P. floribundum* is known as Debosundha (and not Debasandha).

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Among the non-commercial uses of these barks, medicinal application is most important. The bark-paste is applied on bruises, fractured limbs and contusions. Bark is also used in the

### **Concerns over *Persea macrantha***

*“Raw material shortage hits agarbatti exports*

*By Amrita Nair-Ghaswalla*

*By Business Times Bureau*

“MUMBAI: Be it a boudoir or a boardroom, a solicitors chamber or a library, an office or a workshop, the alluring scent of agarbattis (incense sticks) is wafting its way through, cleansing body and spirit. The fragrance is also making a heady impact on foreign soils.

The judicious blend of perfumery compounds and other ingredients has ensured that the pleasant smoke emanating from the Indian agarbatti is carrying the enchanting perfume to more than hundred countries. Indian agarbattis have been spreading their fragrance across the globe to East and West Europe, Southern and West Asia, Africa, Canada and even the US.

Interestingly, the US is the top importer of Indian agarbattis with orders worth Rs 12 crore in the past year alone. The UAE with orders totalling Rs 9.84 crore and Saudi Arabia (Rs 6.92 crore), are close behind. Imports by Brazil notched up Rs 4.06 crore while UK brought in Rs 3.74 crore. Even Ethiopia with Rs 2.64 crore and Mauritius with Rs 2.44 crore have managed to get into the top 10 countries importing Indian agarbattis.

Though Indian incense sticks are all the rage abroad, according to the Federation of Indian Export Organisations (FIEO), “there is an urgent need to encourage the cultivation of the *Persea Macrantha* tree whose bark yields Jigat, a binding agent used in the manufacture of agarbatti .”

Incense stick manufacturers are facing a serious problem of raw material shortage. While the problem of Jigat shortage is a long-standing one, manufacturers are also falling short of solvents such as di-ethyl pthalate (used as a dilutant for perfumes).

Acute scarcity of certain chemicals used by agarbatti manufacturers has pushed up raw material prices, insist officials of Chemexil (Basic Chemicals, Pharmaceutical and Cosmetics Export Promotion Council), thereby increasing production costs tremendously. They added that the supply of di-ethyl pthalate (DEP) is dependent on the supply of phthalic anhydride (a major raw material for making DEP).

While the supply of Jigat is turning increasingly problematic, producers admit that a search for a synthetic substitute is inevitable. Even if large-scale planting of the *Macrantha* tree is undertaken, they explain, it would be years before the yield comes in.

Despite all the impediments, the industry has been notching higher exports each year. While exports in 1997-98 were to the value of Rs 90 crore, in 1998-99 they were Rs 121 crore. From April 1999 to January 2000, Indian exports of agarbatti notched up Rs 71 crore. xxx”

(By courtesy: *Times of India*, 19<sup>th</sup> July, 2000)

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treatment of diarrhoea. Some people apply the paste on the cracks developed on their wooden doors.

*Restriction on extraction:*

There has been many phases of restriction & non-restriction so far the exploitation of this bark is concerned. When the Forest Department found during the initial stage of lease that trees were either unscientifically debarked or cut down by the lessee or his people for the bark collection, authorities recommended for cancellation/discontinuation of the lease which was effective for a short period since the leaseholders soon succeeded in getting an approval through a strong political pressure. In March 2000, when the govt. declared a policy that no such commercial lease would be further granted to private parties, some of the lease holders managed to get stay orders against that and continued their exploitation work till September 2001. After that there has been no continuation of any such lease and the bark remains a restricted item.

*Primary processing and value addition:*

Large pieces of bark are cut into smaller pieces by the local agents & then dried under good sun spreading them apart from each other. Drying may take 5 days in summer and 20 days in winter alongwith a weight loss of up to 60%. The dried pieces are packed in gunny bags for despatch. If pulverised, the bark turns into a more profitable product.

***Industries based on Medha bark***

Although Medha bark is a restricted item, its powdered form is not supposed to be so. Again, selling this powder is more easier as well as profitable. Hence, besides one or two registered pulverisers, many small pulverising units are supposed to be running in hide.

The production cost is approx. Rs. 2/kg. One kg bark yields approx. 900gms of powder. The average wholesale price should therefore be approx. Rs. 35/kg considering that of the good quality bark at Rs. 30/kg.

However, saw dust is an adulterant used by many. Hence, the powder coming from Bangalore costs Rs. 32/kg while that produced in Orissa costs Rs. 24 to 25/kg (Rs. 26 to 27 in rainy season when collection & drying of the bark is difficult).

For making one kg of Agarbatti, approx. 170gms. of the bark powder is required. A major Agarbatti maker of Berhampur requires approx. 500kg of this powder per day.

However, superficial layers of bark (turned black & damaged by insects) have no use since they lack the binding capacity.

*Adulterant* : Besides the Gr. II & Gr. III varieties, the bark of Tamarind tree is also an adulterant, simply because it resembles the Pojo bark in appearance. The simple test to distinguish the Pojo bark is that its paste is balsamic unlike the Tamarind bark.

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*Sustainable extraction:*

The tree trunk should be longitudinally divided into four equal divisions & each division can be debarked on a four-year rotation basis. Experiments by the scientists of ‘Institute of Wood Science & Technology’ (Bangalore) showed that when trees of *Persea macrantha* were scientifically debarked and sprayed with insecticides/fungicides after the debarking, survival (of the tree) as well as the recovery rate (of bark) was quite good with 90% regeneration.<sup>5</sup>

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<sup>5</sup> Source: [www.envfor.nic.in/report/0001/chap07.html](http://www.envfor.nic.in/report/0001/chap07.html) and [www.envfor.nic.in/pbudget/2000/chap-2c3.pdf](http://www.envfor.nic.in/pbudget/2000/chap-2c3.pdf).

### *The barking bark*

In 1996, an order was issued by the government authorities in Orissa to stop giving Ledha/ Medha leases any more. In 1998, the then PCCF of Orissa also recommended to the government that these trees had high medicinal value & as the bark collection was causing the dying out of trees, hence such leases should no more be allowed.

Despite this, the lease holders managed to approve leases in their favour. How they could do it despite the protest from the Forest Department authorities, do not need any explanation since the political connection of these people are well known. In fact, a young officer on probation in the Keonjhar Forest Division in 1995 had to face problems since he attempted to take measures against those who destroyed trees for bark collection. Even there was pressure from the ministerial level to get the order withdrawn. Hence, when one of these influential contractors got his lease for a Forest Division in Central Orissa in October 1999. Some of the conditions in the agreement paper were as follows:

- The primary collectors were to make their societies from which the lessee would procure the bark.
- The societies should adopt sustainable methods of collection & the DFO would ensure this.
- The DFOs would submit at the year end a report to the government regarding the ecological losses (if any) accrued due to the bark collection.
- The DFO would ensure the procuring price for the bark till the same was not decided by the State Level Price Fixation Committee.
- The lessee would not collect bark from trees of less than 6 cm girth.
- The primary collectors would collect the bark not by cutting the trees, but through hammer strokes and in the form of strips. The DFO would ensure this practice.

Within a few days, the lessee requested the government that since creation of societies of the primary collectors was not feasible within this short period of time, hence he should be allowed to procure the bark through VSS (Van Samrakshan Samities which are village level forest protection committees created under the Joint Forest Management programme of the government) instead of the primary collectors' society. The application was granted.

But very soon the same lessee again asked to the government for a special favour to get rid of the VSS which he found difficult to work with (he never intended to work through the VSS and used the term only to avoid the primary collectors' society. As such, there was no question of his working with the VSS.) He argued in his application that he had an industry of bark processing & that, all the bark he would procure would be consumed in that industry. His trick worked and he was now allowed to procure the bark neither from VSS nor from the primary collectors' society, but from the local *haats* /sundries 'without he or his man entering into the forest'.

When the NTFP policy resolution of March 2000 was declared, this lessee filed a case showing the cause that since Medha bark was not an item given to the Panchayats and also since he was procuring the bark for consumption in his industry only, hence his lease should be allowed to continue. The court issued a stay order in his favour & he succeeded in his game plan. To not indulge himself in an unnecessary legal battle, he got the stay order withdrawn just a few days before the closing date of his work order and at present continues his business through illegal procurement. However, he has plans to soon revive the lease through his political connections & is quite confident about it.

That the approval of Medha bark lease for the above mentioned person (name withheld as a gesture of courtesy since he himself disclosed many things to us) was the result of an unholy nexus and that the concern shown in the agreement papers for sustainability of the Medha tree was just a farce, can be judged from the fact that the lower limit of girth was fixed at 6 cm. What does it practically mean by restricting trees of 1.9 cm (approx.) diameter (i.e. 6 cm girth) or less and not more than that ?

The Forest Department is so careless in this matter that it often mentions the names of three different barks (Lodha, Medha & Phenphena) collectively although each of them has its own implication. Many of the Departmental people just fail to recognise the difference between Lodha (*Symplocos racemosa*) & Ledha (*L. glutinosa*). Some officers think that Pojo is a 'herb' and the contractors take advantage of such type of Departmental ignorance/negligence.

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Poor rate of natural regeneration of *Persea macrantha* even in its natural habitat in the Southern Western Ghats has been a matter of concern. The tree is a shade-bearer & can be raised by putting the entire transplants or stumps under a top canopy soon after the break of monsoon. *Litsea glutinosa* and *Litsea monopetala* can be propagated by seed or by coppice shoots. Both are shade bearers and the rate of growth is comparatively faster. Both these plants can be propagated on a multi-purpose basis (for ex. agro-forestry) since their leaves are good fodder and silkworms feed on *L. monopetala* leaves.

Field observations by the primary collectors and lease holders clearly suggest that silvicultural operations can significantly help in the rapid regeneration of *Litsea monopetala* since they (primary collectors) have reported that if cut down in a proper way, one tree can produce approx. 15 new trees within 3 or 4 years. The lease holders made use of this natural phenomenon & divided the lease area into coupes. Each coupe was to be exploited after a gap of 2.5 years. The yield from the second extraction was said to be 1.5 times more than that of the first extraction (*per com.* Sri Sawarmal Gadodia) due to obvious reasons. However, since they again cut down the regenerated ones, hope for more yield in next phases of extraction becomes poor since the rate of exploitation exceeds considerably the rate of regeneration.

***No alternative?***

Why is a particular kind of bark so much in demand in the Agarbatti industry when there are other alternatives available as adhesives?

The answer lies in the ideal nature of Agarbatti itself, Tulsi seeds do not possess enough binding capacity to keep the charcoal mixture attached to the bamboo stick. Gums produced by plants are not easily combustible. And if chemical adhesives are used, then the product would not more be a pure herbal product and would have other implications.

Research institutes have been trying to develop a substitute of *jigat*. One such substitute is said to have failed in the market because of its chemical effect on the herbal aroma of the Agarbatti. An Agarbatti maker of Rayagada once received some kind of synthetic adhesive from Delhi which costed Rs. 200/kg. The adhesive was used for four months on trial basis and was found quite satisfactory except in one field. Using this adhesive raised the production cost by 15%. Hence, it was abandoned. However, as per the claims of National Research Development Corporation, the bio-polymer developed now as a substitute of *jigat* has received wide acceptance by the Agarbatti manufacturers(source: [nrdcindia.com/pages/jigat.htm](http://nrdcindia.com/pages/jigat.htm) ).

Some other species also produce glutinous barks, but the chemical nature need not necessarily suit the criteria for use in Agarbatti making.

A major factor that has prevented the trees of *Litsea* species from regeneration is the debarking of roots. To get maximum yield, the collectors not only cut down the trees but also dig out the roots often to debark the latter along with the aerial parts.

*To be revised and updated. Please contact the author in case of any confusion.*

*Potentiality:*

As the occurrence of *Persea macrantha* in Orissa was declared as 'rare' some 75 years ago(see box: *Threatened species*), it doesn't seem to have any potentiality of commercial importance in the state. The occurrence was only reported from Bonai and Rastuguda valley (near Mandibissi in the Rayagada district) where people now can not confirm its existence any more. It therefore seems that either the species is not recognized by the local people there or has been totally depleted. However, some people claim to have seen similar trees near the north-western boarder areas of Sundargarh district ( beyond Bileimunda ).

As regards *Litsea glutinosa / monopetala*, the total potentiality is supposed to be 1000 MTs or 10000 quintals on sustainable basis (i.e., greater portion of the bark left intact on the tree). If collected unsustainably, the quantity may reach 3000 MT per year (*per com.* Sri Govind Agrawal and Sawarmal Gadodia:2002).

Production trend in the state of Medha bark has been given by the following official figures (original figures in Metric tons converted into quintals):

1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
3200	7955.77	10283.97	15908.37	3201.785	898.08

(Source: *Orissa Forests:1999*)

**True trend**

The official figures suggest a decreasing trend in the production of Medha bark between 1995-96 to 1997-98 which is difficult to accept since a lot of illegal extraction has been taking place regularly. As a former lease-holder estimates, the current rate of illegal extraction is approx. 5000 quintals(dry) per annum. It is well known that traders often manage to furnish lower figures of production so as to reduce the royalty to be paid.

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Between 1993-94 to 1995-96, of the seven different barks collected on commercial basis in Orissa under leases, the amount of extraction of Medha bark was the highest i.e., 46%<sup>6</sup>. As a result of such overexploitation, the potentiality has been considerably reduced in what was once

*Recommendations for the Forest Department*

- Proper botanical identification of different varieties of Pojo and other trees having glutinous bark should be done.
- The quality and marketability of such barks must be properly analysed and established.
- Resource areas of such trees should be adequately mapped out so as to decide the conservation strategy for them.
- Potentiality and production figures of Pojo must be determined independent of that of Lodh & Phenphena. These three items should be dealt with individually.
- Details relating to their silviculture must be properly worked out. For ex., it should be found out if all the varieties of Pojo or Jaisondha can be propagated from root suckers and also, whether cutting down the trees facilitate the growth of root suckers.
- Current status of *Persea macrantha* should be surveyed carefully.
- Steps should be taken for the propagation of all these valuable trees.
- Participatory conservation strategy should be followed.
- The ban on the extraction of Pojo should continue for a few more years so that whatever young shoots have survived, would get time for their maturity.
- Leases, if allowed, must ensure scientific debarking that has not been done despite provisions in the agreement papers. All the trees should be properly marked and

considered as some of the major potential areas of this bark (viz., the forest divisions of Keonjhar, Bonai, Nayagarh and Bamra, etc.). Phulbani and Mayurbhanj districts are currently among the major resource areas of Medha bark.

In 1999-2000, the production of this bark in the Rayagada and Baliguda Forest Divisions was 800 quintals and 698.81 quintals respectively.<sup>7</sup>

<sup>6</sup> The seven different barks were Lodha, Medha, Phenphena, Dantari, Dalchini, Sunari and Kuruchi. For more details, vide *Orissa Forests:1999*, p.30

<sup>7</sup> Source: Statistical section, Office of the PCCF, Bhubaneswar

### ***Threatened species***

The occurrence of *Persea macrantha* in Orissa was declared as 'rare' in Haines (*The Botany of Bihar & Orissa*, Vol. V, 1924). When this book was published, Orissa was actually a part of the province of Bihar & Orissa and hence, most of the present southern districts of the state were outside that province. So the remarks of Haines should not mean to be applicable to the present Orissa as a whole. In 1930s, specimen of *Persea macarntha* were collected from the Mandibissi area, but the general status of this species has been accepted as 'rare' in the state without investigating the current status in the recent decades.

Exploitation for bark has made *P. macrantha* now a threatened species of following status in the states where it was abundantly found:

Critically endangered	:	Tamilnadu
Endangered	:	Karnataka
Vulnerable	:	Kerala

(Source: *Amruth*, December 1999)

On the other hand, the threat status of *Litsea glutinosa / monopetala* is yet to be recognised in Orissa. Reports from local sources suggest that these two species have come under the status of 'Critically endangered' (for ex., in Shimlipal area, the resource has been reduced almost by 75%), but the concerned authorities seem to be ignorant about that. However, there are cases where people are taking initiatives for the protection/conservation of these species.

Karadapal is a tribal village of Keonjhar district where forest protection by local communities began in 1970s. In 1992, the village entered into a federation of some neighbouring villages for the protection of a large area of forest. The federation however could not sustain itself due to internal conflict & this had clear impact on the forest patches. Particularly, the Kuradhia species was exploited (and cut down) to such an extent that, within two years since 1997 it became a rare species in the area. Now, only two mature trees of this species remain in the area: one in Karadapal and one in Hatirucha. The villagers have become conscious and are not ready to hand over the trees to the bark collectors despite an attractive offer.

In Mayurbhanj, a voluntary organisation STEP has convinced the inhabitants of two villages (situated on the bank of Gangahar river) to preserve the regenerated Pojo trees of their area. Pojo along with Palas constitutes a significant proportion of the local flora there & it has been often exploited by people from outside. Now there is a hope for the regenerated ones despite threats from outside.

More or less similar contribution has been made by Bharati Mahanto, a local social worker of Sanamundaloi in the Kuchinda block of Sambalpur. On her advice, the villagers of Kureichuan have reduced / stopped their collection of Medha bark.

And it seems that in many other areas also people are gradually becoming more & more aware that this species must be protected.

*To be revised and updated. Please contact the author in case of any confusion.*

A large evergreen tree, Arjun or *Terminalia arjuna* has very thick bark of grey or pinkish green colour which exfoliates into thin but large irregular sheets. The bark feels smooth, but commercially it lags behind the Pojo bark and in areas where both Pojo and Arjun are available in abundance, the primary collector would certainly prefer to go for a collection of the former as it fetches them a greater income than the latter.

*Local name:* Arjun, Pani-Sahajo

*Trade name:* Arjun

*Seasonality and method of harvesting:* The bark is available throughout the year. Debarking is done with the help of axe.

*Utilisation:* This bark has two major uses, viz.

1. Herbal medicines: Hailed for its curative power for cardiac problems and other diseases, it is used in the preparation of branded products like *Arjunarista* and *Arjuna Ghruta*.
2. Tanning material: Arjun bark, unlike many other forest products, gives leather a quality finish when used as a tanstuff.

However, while Allopathic medicines are more preferred than *Arjunarista* for cardiac problems, various natural (for ex., Babul bark) & chemical substitutes have diminished the demand of Arjun bark in the leather industry as a tanning material. Hence, this bark has lost its former significance in the market. It is said that the leather industry can still procure the bark if supplied in huge quantity, but the rates are not very high.

*Restriction on extraction:*

The bark is banned for commercial extraction since the introduction of NTFP policy, 2000. However, this illustrates a major lacuna of this policy which makes an uniform law for all kinds of bark extraction since it is possible to obtain 'innumerable' crops of fresh Arjun bark without injuring the tree, regularly on a 3- year cycle (*Wealth of India*, Vol X, 1998)); a capacity that is not exhibited by many trees. However, permission for selective debarking may be misutilised for the total debarking or even for the cutting of the tree and hence, the justification for the ban can't be totally ignored.

*Primary processing & value addition:*

For medicinal purposes, shade drying as well as extraction with the help of a stone (instead of axe) is preferred. On complete drying, the weight loss can be up to 50% & under a good sun it can take 7 to 8 days. The strips are cut into small pieces & packed. Raining may turn the bark black (poor quality) while proper drying makes it reddish. While drying, the bark-chips are to be spread out widely so as to avoid mutual contact.

Some wholesalers of Kolkata argue that the Orissa quality is inferior than the bark coming from MP(which is said to be more thicker), but this allegation does not seem to have a very strong

*To be revised and updated. Please contact the author in case of any confusion.*

ground since contractors like N.D.Pyne of Baripada were getting a comparatively higher price for their supply of Arjun bark because of its good quality. If some body supplied immature/thinner bark, that doesn't mean that the Arjun trees found in Orissa are incapable of producing good quality bark.

*Adulterant:* No significant adulterant known.

*Sustainable production:*

Scientific debarking (i.e. removing one fourth of the total bark cover on rotation basis each year) is one method. It is said that the recovery rate is quite faster, particularly in the monsoon (it takes two rainy seasons for the complete recovery). A specially designed instrument, known as 'Fraymouth Cutter', can remove the bark without causing damage to the tree. The bark thus removed doesn't have the white layers present in the axe-removed strips. However, it seems that the Forest Deptt. people are unaware of this instrument.

The plant can be propagated either by direct sowing or by transplanting or by means of stumps. It is a moderate shade-bearer & does not tolerate dense overhead shade (that may be the reason behind its low rate of occurrence in dense forests). It grows well on moist grounds (thus, near streams) and can be successfully raised along with field crops.

Seedlings maintained in nursery beds for 3 to 4 months are planted in July. Deep planting is to be avoided (Sumy et al:2000).

*Potentiality:*

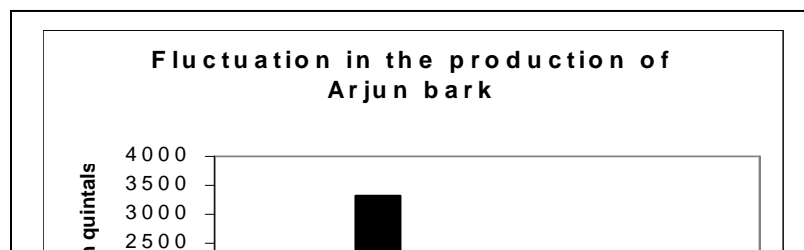
"We can supply you just as much as you need", - this was the reply of a stockist of western Orissa when we asked him about the potentiality of Arjun bark in the state.

In fact, due to low demand and the recent ban, Arjun bark is being collected on a very lower scale & this has helped to save the species. As a result, the potentiality of this bark is quite high unlike the Medha bark. For ex., in Karanjia, Keonjhar & Deogarh divisions, 1000 to 1500 quintals (dry) of Arjun chhali can be collected on sustainable basis (*per com.* Sri N.D. Pyne). Similarly, some 2500 quintals of dry bark can be collected in the Phulbani district on sustainable basis (i.e., selective debarking) (*per com.* Sri Govind Agrawal).

Trend of production (in quintals) in the state is illustrated by the following table:

1980-81	1981-82	1982-83	1983-84	1984-85
105	3339	2116	2128	106

(Source: *A Decade of Forestry in Orissa:1981-90*, Table 3.3.2)



*To be revised and updated. Please contact the author in case of any confusion.*

**ASWAGANDHA**

*To be revised and updated. Please contact the author in case of any confusion.*

This is an evergreen shrub growing up to 1.5 metres in height. This plant is usually perennial, but cultivated as an annual crop. It resembles the *Arakha* plant and has pale green flowers.

Despite morphological similarity, the Indian varieties of *Aswagandha* (*Withania somnifera*) were found to contain atleast nine more alkaloids (*withanolides*) than their counterparts grown in Israel (from Indian seeds). This shows that geographical variation might also cause a variation in the chemical composition of *W. somnifera*.

There are two varieties of *Aswagandha*. The 'smaller' (size of the plant) one which has longer roots is known as the *Nagori* *Aswagandha* which has a yield potential higher than that of the *Deshi* or 'bigger' *Aswagandha* which has roots of small size. However, there is a difference of opinion regarding the quality of both these varieties and some believe that the roots of *Deshi* variety are comparatively better in their therapeutic action than the starch-rich *Nagori* roots.

*Local name* : *Aswagandha*

*Trade name* : *Aswagandha*

*Seasonality and method of harvesting*: The harvesting period is January to March (from cultivation). The roots are collected by digging or by uprooting the whole plant.

*Utilisation*:

The most important use is in Ayurveda since this herb has been found to be a potent cure for a large number of diseases including plague. The roots form the most important part and some have named it as the Indian Ginseng. *Aswagandharista* is a well-known branded formulation based on this drug.

The annual demand in Orissa is supposed to be more than 650 quintals.<sup>8</sup> Some laboratories also use it for the extraction of alkaloids (*withanolides*).

*Restriction on extraction*: Since this species is not known to occur in wild in Orissa, it has not been specifically banned for commercial extraction.

*Primary processing & value addition*:

The dried roots are cleaned and graded before despatch. Shade drying is advocated by some for medicinal use. The weight loss due to drying may range from 40 to 80% and drying may take approx. 3 days for thinner roots & approx. 6 days for thicker roots.

The gradation is done on the following basis:

Grade	Length (in cm)	Diametre(in cm)
A	Above 7.5	Above 2.5

<sup>8</sup> According to *Sabuja Viplab* (a Bolangir-based NGO), there are 65 , them are supposed to use atleast 10 quintals of *Aswagandha* annually

M/S. Annapurna Bhandar, Kolkata specified the grades as in the following:

1. Best (root pieces of 1 to 2 cm diametre.) : Rs. 68 (wholesale procuring price at Kolkata as on 3-01-2002).
2. Mixed (roots of varying thickness): Rs. 55
3. Tukdi (small remnants): Rs. 34/40

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B	5 to 7.5	1 to 2.5
C	Less than 5	Thin
D	Remnants	—

The thin and wiry roots are practically useless as drug.

Supplies from Orissa (from cultivation?) have been found by the Kolkata traders to be of inferior quality than the MP production. The Orissa variety has been often found to be more thicker(exceeding the standard limit?) & insect-bitten.

*Adulterant* :Aerial parts (stem etc.) of the plant are sometimes mixed with the roots. A test for the identification of Aswagandha roots is that they have a strong odour (said to be that of the horse-urine) and mucilaginous bitter and acrid taste (*Wealth of India*).

*Sustainable production:*

Cultivation seems to be the only way out in Orissa. Broadcasting with sand is advocated to be the best method by some since transplanting is supposed to produce more fibrous roots. In the broadcasting method, 10 to 12 kg seed is required per Hectare for well-prepared & moist land and thinning is done after 20 to 25 days of sowing to increase the mutual distance of seedlings upto 10 cm. The seeds are to be put in water for two days & then dried to some extent before being broadcast with equal amount of sand. Weeding is necessary at appropriate times, but use of chemical fertilizers is usually not preferred. Little irrigation is useful.

Line sowing (at 25cm mutual distance) in after mid-August or transplanting the seedlings (prepared since July) at 30 cm distance are two other methods. Five kg seed can produce enough seedlings for transplanting purpose in a Hectare.

Harvesting is between January to March (when the fruit is mature). The yield can be +-400 kg/Hectare alongwith 50 kg seed (Rs. 50/kg). Cost of production is not high & the cultivation can be done in poor quality soils.

*Potentiality:*

Aswagandha, as per the botanists, has never been collected from the wild in Orissa. Whatever negligible resource exists in the state is planted or cultivated.

Some people claimed to have found the wild variety at a few places (for ex., in the Nurla area of Kalahandi district), but all such claims have generally been found to be baseless. One of the reason behinds such claims seem to be confusion regarding the species as observed in certain parts of the Nayagarh district where a completely different species has been accepted & locally used as Aswagandha (see box).

*From substitution to identification*

When we asked the local medicine man of village Barapalli (Khurdha district) about Aswagandha, he said that the plant was locally available. One of his pupils also claimed the same, but the way they described this local Aswagandha did not match with the details of *W. somnifera*. So we went to the nearest site to locate this plant and found to our dismay that it was a completely different species (botanical name unknown) a small shrub which can

*To be revised and updated. Please contact the author in case of any confusion.*

**BHUINEEM**

*To be revised and updated. Please contact the author in case of any confusion.*

Bhuineem or *Andrographis paniculata* is an erect annual herb sometimes growing up to a metre in height. Major constituent of the plant is *Andrographolide* which is maximum concentrated in the leaves. Dried samples (whole plant) collected from Kuchinda area by M/S. Deepika Natural Products of Satennapalli (AP) were reportedly found to have a total alkaloid content of 1.175 % of which 80 to 90% can be taken as the amount of *Andrographolide* present.

*Local name* : Bhuineem/Chireita

*Trade name* : Kalmegh

*Seasonality and method of harvesting*: Collection takes place during October to December. Whole plant is uprooted and disposed of.

*Utilisation*:

The use is chiefly in the herbal preparations like *Bhuneembadi churna*, *Sudarshana churna*, and the homeopathic formulations. Viewed as a poor-quality substitute of the Nepali Chireita, this herb is widely used for curing stomach / lever problems, skin diseases and fever. The leaves are supposed to contain insectisidal properties.

Non-therapeutic uses include the following:

1. Added to liquors for making the taste bitter.
2. For dyeing textiles.
3. As a flavouring agent in cattle-feed in some of the

Hemp and Bhuineem

Reliable sources reveal that some traders use Bhuineem for smuggling hemp as the former's strong odour and green colour work as a camouflage for the latter

**Chireita: White, Green and Red**

The most popular and commercially important Chireita is *Swertia chirayita*, a Himalayan species quite different botanically from *A. paniculata*. Also known as Nepali chireita (since a lot is imported from Nepal), it also tastes bitter and like Bhuineem, the whole plant of *S. chirata* is used as drug; but unlike the latter which looks green even after drying, the Nepali chireita rather assumes a creamish yellow colour and is thus known as the White Chireita while *A. paniculata* is known as the Green Chireita.

A rather unusual variety of *A. paniculata* was seen at Kaputikra near Kuchinda. These plants had leaves of chocolate colour on their surface, but often lacking any glaze. In some cases, shades of green was also present and it appeared as if green was turning into 'red'(chocolate colour) during the stages of maturity; but even new leaves were found to have the chocolate colour. Besides the leaf colour, there was no other difference from the normal variety and the chocolate colour leaves tasted equally bitter.

What turned the green Chireita(bhuineem) into red? A paper presented in WOCMAPIII at Chiangmai, Thailand in February 2003 revealed that exposure to sunlight is the cause of reddish colour in *A. paniculata*.

*Restriction on extraction*:

*To be revised and updated. Please contact the author in case of any confusion.*

No restriction. It is a free item and can be traded inside the state and transported to other states without any permission from the Forest Department although a registration at the local Panchayat is necessary for commercial procurement.

*Primary processing & value addition:*

After sun-drying for a few hours, shade drying (which helps to preserve the green colour) of the plant is preferred which may take approx. 3 days. The weight loss may be of up to 50%.

The dried plant must retain maximum amount of leaves since the alkaloid content is maximum in the latter. Rejecting the root part makes the material more acceptable for commercial purpose. Also, seeds are to be collected before packaging.

*Adulterant* : Common weeds. Bhuneem itself can be used as an adulterant in the Nepali Chireita in the powdered form.

*Sustainable production:*

The plant grows well in shady and moist wastelands, but is sometimes found in dry forests also.

The whole plant is usually uprooted for use, but this can create problem if done on a large scale for commercial exploitation, as there would be little seed available in the area for regeneration in the next season. Hence, leaving a few plants intact on the ground in a systematic way (so that the seeds therefrom could cover the whole area) is necessary for sustainable extraction in areas where people collect the plant before the fruits appear.

The plant can be propagated from seed. Seedlings of 45 days prepared in the nursery are transplanted in well-manured & well-irrigated fields at a distance of 30 cm × 45 cm each at lines distant from one another by 30 cm. Transplanting should be complete by the 1st week of August. Irrigation is required once a week, but water-logging is to be avoided. Harvesting is done after 4 to 5 months when the seeds become mature & dried and the yield per hectare is around 80 quintals.

To be revised and updated. Please contact the author in case of any confusion.

Potentiality:

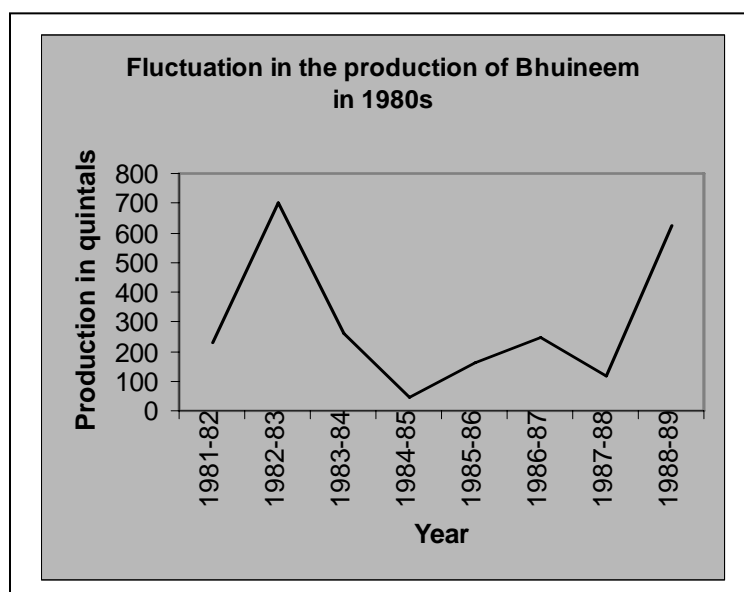
The potential areas of Bhuineem are in the following forest divisions<sup>9</sup>:

Athamallik	12 quintals
Bolangir	100 quintals
Bamra	50 quintals
Bonai	2 quintals
Karanjia	86 quintals
Total	250 quintals

The production(in quintals) has been as per the following table :

1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
230	703	260	46.5	160	247	118	624

(Source: *A Decade of Forestry in Orissa:1981-90*, Table 3.3.2)



<sup>9</sup> Except for the estimates for Medha chhali, Arjun chhali & Anantamul, the figures showing the yield potentiality of other items have, unless otherwise specified, been taken from the 1999 (April) compilation(unpublished) of the Orissa Forest Department which are yet to be revised and published. These official figures are only indicative and not accurate. Even the production figures as furnished by the Department are also supposed to be incomplete. It may be noted here that all these figures imply to the dried material.

*To be revised and updated. Please contact the author in case of any confusion.*

The above table shows an average collection of 298.56 qtls. per annum which more or less corresponds to the total estimated potentiality in the state.

The production in the next decade was as follows (MTs converted into quintals):

1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
NA <sup>10</sup>	260	NA	60	NA	52

(Source: *Orissa Forests:1999*)

**RITHA**

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<sup>10</sup> Not available

*To be revised and updated. Please contact the author in case of any confusion.*

Ritha is the fruit of *Sapindus trifoliata* which is a deciduous tree of considerable height. This tree is cultivated in many parts of India for its saponaceous fruit otherwise known as Soapnut.

*Local name* : Reetha, Muktamonja & Kunkudkaya (Telegu)

*Trade name* : Ritha

*Seasonality and method of harvesting:* Mature fruits are collected during March to May. Fruits either fall themselves or are forcefully collected by sticks or by shaking the branches.

*Utilisation :*

The demand is maximum for the cosmetic purpose. The dried fruits soaked in water overnight turn the water suitable for washing hair as well as delicate and valuable clothes & ornaments. The English name (Soapnut) as well as the Oriya name (Muktamajja i.e. that which washes pearls) justify this action.

Less popular is the medicinal use although it is hailed for its rapid action in feets, hysteria & epileptic conditions. The fruit is also used in the treatment of excessive salivation, chlorosis & dental problems. However, it (Ritha fruit) has also been indicated to cause abortion in pregnant women when consumed orally and this property has recently been used successfully by the Lucknow based *Central Drug Research Institute* to develop an oral contraceptive for women.

Powdered seeds are said to possess insectisidal properties & the fruit can act as a fish –poison.

*Restriction on extraction:* Same as for Bhuineem.

*Primary processing & value addition:* Collecting the mature fruits from the trees and drying them is the common method for preserving them. The fruits are to be used throughout the year & proper drying is necessary to preserve them.

Some collect immature fruits & then dry them which may take approx. 4 days alongwith approx. 50 % weight loss. Fruits maturing on trees turn a little reddish.

However, the fruits produced in Orissa are inferior in quality than those supplied from northern India (e.g., Punjab). The latter ones are comparatively bigger in size & appear more richer in their flesh content which is the major source of saponin in the fruit. As such, the Punjab variety is procured by the traders at 80% ( or more) additional price than that of the Ritha produced in Orissa although the fruits (Ritha) produced in the Narayanpatna area (Rayagada district) are claimed to be better in quality than those produced in Andhra (Salur).

*Adulterant* : No adulterant known.

*Sustainable production:* Fruits should be collected when mature & that too without causing any significant damage to the branches as well as the newly appearing leaves.

*To be revised and updated. Please contact the author in case of any confusion.*

For artificial regeneration, the tree requires deep, well-drained ground & if rainfall is not 175 cm or more, then it should be raised in moist & cool situations.

Direct sowing is not very reliable, hence transplanting the nursery-risen seedlings is preferred. Cuttings may also do propagation.

*Potentiality:*

According to the estimates of Forest Department, following quantities of Ritha are / were available in Orissa:

<u>Division</u>		<u>Quantity ( in quintals)</u>	
Athamallik		2	
	Nowrangpur		2
Rayagada		<u>100</u>	
		Total :	104 quintals

However, almost all the production of Ritha in Orissa is not from the wild but from planted trees. While Haines was not confident about the existence of any wild tree of Ritha in Orissa, Sengupta (1941) concluded that *S. mukorossi*<sup>11</sup> (Ritha) was not found (in wild) in Orissa and that, it had been planted. He (Sengupta) also recommended for its introduction (in the forests?). However, some trees may be existing in the wild (as an escape from cultivation?) because, for ex., at Sankarada Toyaput (near Rayagada), the NTFP traders say that this plant is there in the local forests, but rare; and that, due to lack of market demand, no body is harvesting these fruits.

It seems quite probable that the Ritha species has been introduced in Orissa under the Telegu influence. The use of Ritha is said to be very popular in Andhra & one can see that many of the planted trees of this species in the Rayagada district are owned by the Telegu speaking non-Oriya residents

In Rayagada district, Narayanpatna is a promising area of Ritha production. The capacity is said to be around twenty bags (each bag approx. 50 kg?) per annum. Scattered occurrences of non-wild Ritha trees are also noted in and around Rayagada town (for ex., Amlapetta village has three trees). However, the total potentiality (current) is, according to some forest contractors of the division, supposed to be maximum 50 quintals per annum.

The production trend is given by the following figures(in qtls)<sup>12</sup>:

1992-93	1993-94	1994-95
200	165	130

(Source: Patnaik:1996)

<sup>11</sup> *S. mukorossi* is known as the Soap-nut tree of North India while *S. trifoliatus* is known as that of South India. Both the terms are however loosely used to indicate the same tree.

<sup>12</sup> All the quantity was procured by TDCC alone. No information available on procurements (legal/illegal) made by other parties.

*To be revised and updated. Please contact the author in case of any confusion.*

In 1995-96, the production was 3.6 MTs<sup>13</sup> (36 quintals). This clearly illustrates a declining trend in the production of Ritha under the license of Forest Department. The decrease is partly due to the decreasing market demand and partly due to the decline in the number of Ritha trees probably (for ex., in Kottapetta near Rayagada, one such tree has been cut down by its owner).

## **SHIKAKAI**

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<sup>13</sup> Source: *Orissa Forests: 1999*

*To be revised and updated. Please contact the author in case of any confusion.*

Pods of *Acacia concinna/sinuata* are known as Shikakai. The plant is a large, climbing shrub which develops thorns on the branches and is occasionally found in mixed forests or periphery area of dense forests, particularly near streams.

*Local name* : Shikakai, Kuchi Phol (Shimlipal), Badiphulo (Ganjam)

*Trade name* : Shikakai

*Seasonality and method of harvesting* : The period of collection is usually February to March. Pods are plucked by hand.

*Utilisation:*

The major use is as a cosmetic material. Like Ritha, it is also used as an ingredient in herbal soaps & shampoos, but unlike the former, its local & traditional use in Orissa for washing hair is not common although the paste prepared from the pods can be applied as shampoo.

Rather, in Shimilipal area, the local people sometimes make *chutneys* from the tender acidic leaves of the plant. The leaves are also used by them in the treatment of cough & dysentery.

The fruit is recommended by some for the treatment of kidney problems also. When used in the *Leha*<sup>14</sup> form, it can help cure jaundice and problems caused by bile & cough and also act as a purgative (Tripathy:1953).

*Restriction on extraction:*

Same as for Bhuineem.

*Primary processing & value addition:*

Mature fruits are sun-dried & the weight loss is approx. 60%. Such fruits appear thicker & reddish and are better priced.

Immature fruits are often collected by pr. collectors which may take approx. 15 days for drying along with a weight loss of up to 85%. Such fruits usually turn black and are considered to be of inferior grade than the former one. The yield (from drying ) ratio of immature pods is 6:1 whereas that for mature pods is 3:1.

*Adulterant* :

*Chelipagla* (Gudgudia range of Mayurbhanj ) is a plant that closely resembles *Acacia concinna* in its behavior as well as fruit and can be used as an adulterant.

*Sustainable production:*

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<sup>14</sup> A type of processing described in Ayurveda.

*To be revised and updated. Please contact the author in case of any confusion.*

Pods should be collected only when mature & that too without causing significant damage to the branches. Few of the pods should be left on the tree for its natural propagation. The plant can be propagated from seedlings. May-June is the transplanting time.

*Potentiality:*

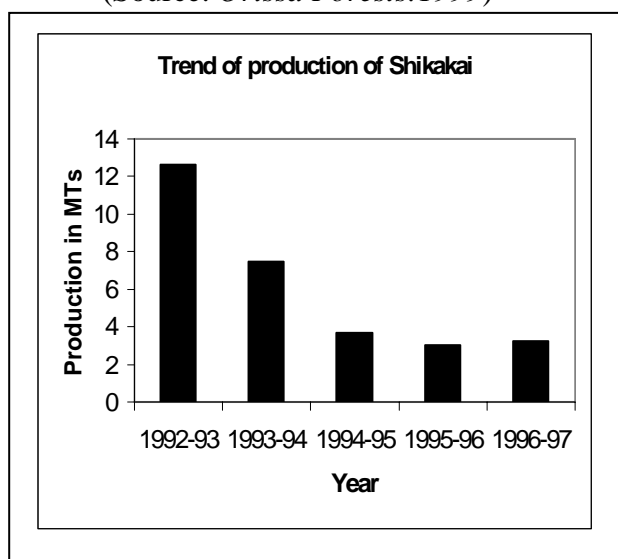
Official figures of Division-wise potentiality are as follows:

Athamallik	:	13 quintals
Keonjhar	:	25 quintals
Ghumsur North	:	50 quintals
Kalahandi	:	20 quintals
Khariar	:	20 quintals
Rayagada	:	10 quintals
Nowrangpur	:	300 quintals
Bonai	:	5 quintals
Rairakhola	:	10 quintals
Karanjia	:	<u>0.59 quintals</u>
Total		453.59 quintals <sup>15</sup>

The production (MTs converted into quintals) has been as follows:

1992-93	1993-94	1994-95	1995-96	1996-97
126.22	74.89	37.01	30.34	32.37

(Source: *Orissa Forests:1999*)



<sup>15</sup> As per the Status Report of 1998, Bolangir division had a potentiality of 9 quintals. It may be mentioned here that TRIFED estimated the total output potentiality of Shikakai in Orissa at 2000 quintals (before 2001).

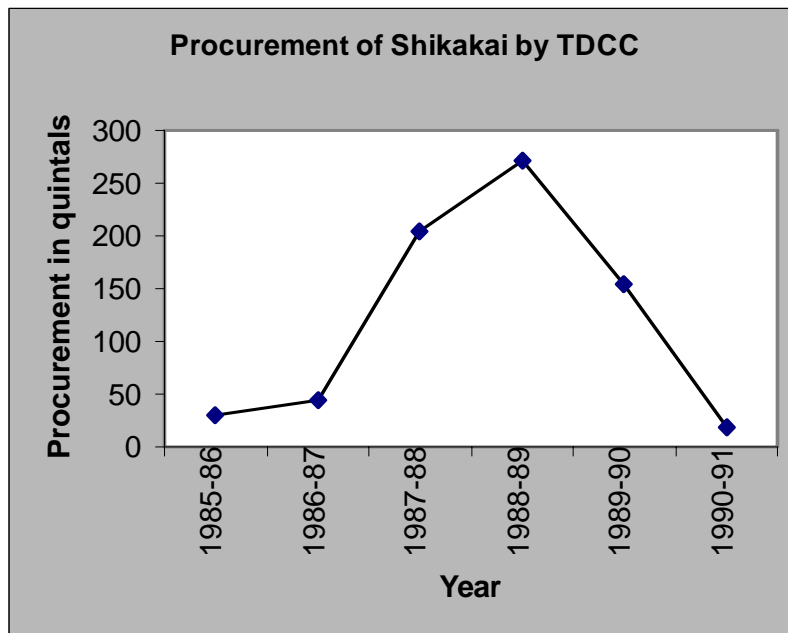
*To be revised and updated. Please contact the author in case of any confusion.*

The above table shows an average production of 300.83 quintals per annum which is still below the total potentiality figure of 453.59 quintals. This indicates that the item is under-exploited in the state despite its potentiality.

This trend is also reflected in the following table in which figures of procurement by TDCC have been furnished:

1985-67	1986-87	1987-88	1988-89	1989-90	1990-91
30	44	204.98	272.05	154.03	18.91

(Source: Patnaik:1996)



The above trend in the procurement amount of Shikakai by TDCC suggests a fluctuating market condition for this item.

*To be revised and updated. Please contact the author in case of any confusion.*

Certain species of *Curcuma* produce fleshy and tuberous roots or rhizomes which are known as Paluo. The starch extracted from the rhizomes is also known under the same name and is, because of its similarity with that of the true Arrowroot, also known as the East Indian Arrowroot.

The plants resemble the well-known *Haldi* plant (*Curcuma longa*) which also belongs to the same genus. Scientifically, they are identified as *Curcuma angustifolia*, *Curcuma aromatica*, *Curcuma zedoaria*, etc., but the Khadias of Shimlipal, who have traditional expertise in the collection & processing of Paluo, distinguish the varieties in their own way as follows:

*An identity crisis ?*

In Saxena & Brahmam, we find that only two varieties of *Curcuma* are used in the extraction of starch, viz., *Curcuma angustifolia* and *Curcuma aromatica*. However, the Mishras say that *Curcuma zedoaria* is also used for Paluo extraction. But as we have said, the Paluo collectors distinguish more than three varieties some of which are yet to be recognised in Orissa.

*Chauli*  
*Kanka*  
*Shanaga*  
*Haldia*

Irritation and/or bitterness increases

*Chauli* yields comparatively large size rhizomes than *Kanka*, but the starch content is said to be more in *Kanka* which the Khadias prefer for domestic use. *Haldia* has rhizomes yellowish

***Cassava, Arrowroot and Paluo***

In their processed (starch) form, they all look alike. In chemical nature they are all carbohydrates; but scientifically, their sources are different.

Cassava is the starch obtained from the tubers of *Manihot esculenta*, a species introduced in the Koraput district sometime in 1960s by the Central Tuber Crops Research Institute. This is a shrub more than 7 feet high which can be propagated from the stem cuttings only and it is being cultivated in some parts of Orissa. The tuberous roots are known as Gaya-aloo, Katha-aloo and Katha-kanda, etc.

True arrowroot is obtained from the tuberous roots of *Maranta arundinacea*. The plant resembles those of *Curcuma* species, but unlike the rhizomes of the latter, its tuberous roots resemble radish and taste sweeter. It is being cultivated in Balasore and Ranpur areas where the cultivators call it Paluo without knowing the difference between the two.

The arrowroot powder prepared from the starch of *M. arundinacea* tubers is consumed by the confectioneries in the making of Arrowroot biscuits. Its quality and rate is said to be better than that of the Cassava powder.

Cultivation of *M. esculenta* is commercially more viable than that of *M. arundinacea* because the yield (raw) is double in case of the former. Also, the main consumers of Arrowroot powder are the local people and the confectioneries while starch of *M. esculenta* tubers have a number of value addition/processing techniques for the promotion of their sale in the domestic as well as international market (for ex., Sago is a granulated form of Cassava). However, Cassava tubers need immediate processing within two days of their harvesting while rhizomes of Arrowroot and Paluo allow a few more days for that.

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*Shanaga*) which has yellowish (inside) rhizomes which is not only bitter, but causes extremely irritating sensation in the mouth. This fifth variety is usually abandoned by the collectors, but in some areas of Shimlipal (for ex., Astakumari & Makabadi), it is reportedly found in abundance and used for Paluo extraction. The above – mentioned wild varieties have rhizomes that resemble ginger to various extent.

*Local name* : Paluo, Bano-haldi (*Curcuma aromatica?*), etc.

*Trade name* (starch) : Arrowroot / Paluo

*Seasonality and method of harvesting* : The period of harvesting is December to January. Rhizomes are dug out for further processing.

*Utilisation:*

The sweet variety (i.e., the true Arrowroot which is mistaken as Paluo) is often used as a vegetable and is consumed either in raw or in the processed form (curry, *payas*, etc.). The food value is supposed to be higher & it was a common ingredient in *payas*-making in the Balasore region some 50 years back when substitutes like semolina had not been introduced in the area.

Both the sweet & the bitter (wild) varieties are processed to yield the local Arrowroot powder which is said to have therapeutic value in the treatment of diarrhoea, etc. The powder is actually the starch content of the rhizomes .

Paluo is known in Sanskrit as Twakshiri and Ayurveda says that it is effective in asthma, TB, cough and fever etc., besides being useful as a tonic (Tripathy:1943). Some vaidyas use it as an ingredient in the preparation of Ayurvedic medicines like *Kumari-paka* and *Methi-modaka* (*per com.* Sri Maguni Mishra:2001).

*Restriction on extraction:*

Same as for Bhuineem; but in Shimlipal, the primary collectors sometimes face problem in the collection since the forest is a protected area. In some of the core areas (for ex., Jenabilo, Barhakamuda, etc.) of this forest, output potentiality of Paluo exists but the inhabitants have been evicted from those places as a result of which they now go there and camp for the collection which is not quite convenient for them.

*Primary processing & value addition:*

As regards Arrowroot, the cultivators of Ranpur area sell the produce in raw and get Rs. 6 to 8 per kg only. They do not process it for the powder.

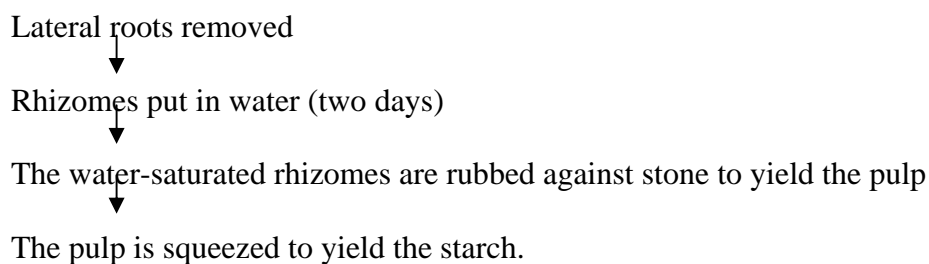
However, their counterparts in Balasore also sell both the rhizomes as well as its starch. They just peel off the thin cover from the rhizomes, wash them with water, then batter the rhizomes using the country made stamping mills (*dhinki*) and extract the diluted starch from the pulp in a pot by straining through a coarse cloth. This pulp is recycled if the powder is not to be kept for

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domestic consumption since the recycling process is supposed to decrease the therapeutic value of the final product although the yield is more.

The diluted starch is treated with water two or three times so as to remove unwanted materials like clay particles and fibres. Then it is left to settle down & excess water is removed carefully. Re-suspension & resettling are carried out several times after which the starch is spread under sun for drying which may take two or three days. The yield of starch is approx. 1 Kg from 5 Kg rhizomes.

However, the Khadias of Shimlipal adopt a different method for Paluo extraction as shown in the following chart:



The final processing of the diluted starch is similar to that used by the cultivators Arrowroot in Balasore. Recycling of the pulp is not preferred even for commercial purpose and recycling is also not possible since the Khadias do not batter the pulp/rhizome and rubbing is the only method used for pulp-extraction.

However, some of the Khadias of Shimlipal are said to practice a different method for removing unwanted/bitter components from the pulp. They wrap the material in a piece of cloth and put it in flowing water which washes out the bitter constituents to some extent. The starch thus produced is still bitter, but is considered to be the best.

The whole process may take five to seven days (for processing only).

#### *A lost market?*

According to Sengupta, the red *abir* (powder colour) used in the Holi festival was being prepared from the rhizomes of *Curcuma zedoaria*. In addition to this, the rhizomes of the same plant (?)♣ are cut into small pieces and then dried so as to turn into what is known as *Gandha-sunthi* in the Ayurvedic *materia medica* (Mishra:1991). However, the Paluo collectors of Orissa are not known to practise any of these methods of value addition.

Except for taste, powder prepared from properly processed sweet Paluo is hardly different from that prepared from the wild varieties in colour, hardness (of small masses) or solubility. If not dried properly, the powder retains a more amorphous form (Grade – II variety) while the properly processed and well-dried starch consolidates to form small irregular masses or nodules (Grade – I). The latter variety (Gr- I) is procured at 10% or more the rate of the Gr-II variety and sometimes the increment can be as high as 300%.

Some of the Paluo rhizomes are aromatic and they make the processed starch feebly aromatic. The starch prepared from *Maranta arundinacea* usually lacks this aroma. However, if Paluo is prepared only from the non-aromatic rhizomes of *Curcuma*<sup>16</sup>, then the starch will also be non-aromatic.

*Adulterant* : The primary collectors mix up the pulp of all the wild varieties (both aromatic & non-aromatic) for the production of starch. This helps them ensure maximum production, but it is not usually seen as an act adulteration.

Adulteration of white rice powder and camphor powder is reportedly practised by some cultivators of *Maranta arundinacea* to increase the production & to make it aromatic.

#### *Sustainable production:*

The Khadias leave a portion of the rhizome in each plant so as to make the regeneration possible next year. They also cultivate different species of *Curcuma* to a very negligible scale in their homestead lands. Large scale cultivation of true Paluo is not known to exist in the state and also

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<sup>16</sup> *Kanka paluo* was found to be less aromatic than *Chauli* while *Haldia* was found to be strongly aromatic.

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the Central Tuber Crops Research Institute at Bhubaneswar has no plans to promote this cultivation; but experiments done in this field suggest that if the bud-bearing cut-pieces of the rhizomes of *C. zedoaria* are planted in raked soil during Feb.-March at a spacing of 23 cm × 46 cm, then yield of tubers can vary from 7 to 12 tons per hectare if fertilizer<sup>17</sup> is applied twice (after 75 days and 180 days of planting) (Chadha & Nayar:1994).

Cultivation of Arrowroot may have a different method. For ex., Jalandhar Tad, a cultivator of *M. arundinacea* in the Jagannathpur village near Jankia (Khurdha district), just dump the plants after complete collection of the rhizomes and regeneration takes place automatically from the roots of the dumped out plants. These are transplanted like seedlings in well-prepared fields in the month of March-April. The seedlings are planted 1 foot apart from one another while the distance between the parallel lines remains at 1.5 feet.. Weeding & irrigation etc. are done at appropriate time & the harvesting is in October – November. The expenditure is as follows (for cultivation in 1 *man* or 450 decimil land):

Ploughing	:	Rs. 600
Labourer	:	Rs. 3200
Manure (bio-fertilizer):		Rs. 1200
Chemical fertilizer	:	Rs. 500
Total	:	Rs. 5500 <sup>+</sup>

The yield per *man* is approx. 20 quintals (raw) which @ Rs. 500 per quintal fetches Rs. 10000. Even when the rates go down (Rs. 300 to 350/ quintal) the cultivation is still profitable. In fact, economic potential of 4-acre cultivation of paddy is equivalent to 1-*man* cultivation of Arrowroot. However, the yield may be less by 25% or more if chemical fertilizer (like Urea & Super etc.) is not applied.

At Ambulkuda & adjacent areas of Balasore, the cultivators practise a different method. They remove the upper portion of the harvested rhizomes & keep the same as ‘seeds’ which they sow in their backyards or mango groves in April – May. The soil is prepared before that. Regeneration takes place within 15 to 20 days after which weeding is done at appropriate time. Irrigation is little required since the plants usually grow under shade. Harvesting is done in January to February and each plant yields one to two kg rhizome. Cost of production may be Rs. 3000 to 4000 per acre for the beginners while net income may be Rs. 15000. These people get Rs. 50 to 60 for their processed product (starch) and the rhizomes are sold at ± Rs. 8/kg.

In Ranpur area, the demand for rhizomes is maximum in the month of *Kartik* (Oct-Nov.), hence the cultivators harvest the same by that time. But situation in Balasore region is different where people do not care if the rhizomes are not sold since they know the processing to yield the starch.

#### *Potentiality:*

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<sup>17</sup> 70 kg Nitrogen+90 kg Phosphorus + 90 kg Potassium (per hectare)

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The Forest Department estimated the following output potentiality of Paluo<sup>18</sup>:

Athamallik	1 quintal
Balliguda	50000 quintals <sup>19</sup>
Gh. North	1 quintal
Phulbani	1.34 quintals
Rayagada	5 quintals
Nowrangpur	12 quintals
Baripada	20 quintals
Karanjia	16.3 quintals
Total	50056.64 quintals

The trend of production of the wild variety (in starch/powder form) is illustrated in the following (in quintals):

1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
63.06	27.10	49.99	55.37	69	NA	38	7	2

(Source: *A Decade of Forestry in Orissa:1981-90*)

1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
77.86	24.66	41.67	7.74	18.16	125.91

(Source: *Orissa Forests:1999*; figures in MT converted into quintals)

Thus, between 1992-93 and 1997-98, the average production was 49.33 quintals per annum whereas between 1980-81 and 1988-89, it was 38.94 quintals. This shows an increasing trend in last two decades.

However, the above tables also show that the trend was not continuous if year-wise production is taken into account. This may be due to the fluctuation in the procurement of Paluo by OFDC which has gradually shifted its attention to some other profitable items<sup>20</sup>.

<sup>18</sup> The potentiality seems to be that of the starch powder since it is in this form that trading of Paluo takes place.

<sup>19</sup> This figure is doubtful if it is taken as the potentiality of Paluo starch only.

<sup>20</sup> The figures of production are/were based on the information provided by the concerned departments/agencies. If they fail or neglect to provide the same, the officer in charge of compilation at Bhubaneswar is helpless. An example is the production figures of Ritha which is not available in the concerned register of the department at Bhubaneswar although TDCC had procured those quantities. Thus, the trend in production as available from departmental records is not always very reliable.

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## **DHATUKI**

Dhatuki is the flower of *Woodfordia fruticosa*, a large shrub. Brilliant red flowers make the tree so beautiful that it is sometimes planted for ornament. Besides that, the plant is a good soil-improver.

*Local name* : Dhatuki

*Trade name* : Dhatuki

*Seasonality and method of harvesting* : The harvesting period is between January to March. Flowers are not collected individually but as a whole (in each branch) at a time along with the leaves, by hand.

*Utilisation* :

The major use in the Ayurvedic pharmaceutical industry where the flower is added to other ingredients to cause alcoholic fermentation. *Dhatukyadi churna*, *Brihat Gangadhara Churna* and *Dhatukyadi Taila* are the three branded medicines prepared from this flower.

It can also be employed for making country liquors and also to yield a red dye. It can also serve as a tanning material.

*Restriction on extraction*: Same as for Bhuineem.

*Primary processing & value addition*:

The flower is to be sun-dried which may take more than seven days along with a weight loss of up to 80% (on complete drying). Usually, the primary collectors bring it in a semi-dried condition after drying it for one or two days, but in such cases the stalk remains yet to be dried completely which causes the risk of turning the flower black after packing. Neither the pluckers nor the procurer have patience for complete drying because of the lower rate of the produce, fluctuating market rates as well as risk of getting damaged by ants.

Leaves are separated from the dried stock before the disposal of the flower.

*Adulterant* : Although *Jhileri Phool* (Karanjia) can be an adulterant, but in practice no adulteration is done.

*Sustainable Production*:

Some flower should be left on the plant so as to ensure seed production. The plant can be propagated from seeds and cuttings.

It is a matter of concern that in some areas, deforestation and/or civil construction projects have caused the cutting down of the Dhatuki plants and the local people have not cared for this simply

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because the plant did not appear to have importance in their livelihood. This is how the investment of labour increases without any increase in the procurement price and this creates a discouraging situation for the primary collectors. In areas of good potentiality, a family is supposed to collect 30 to 40 Kg Dhatuki flower(raw) per day, but this possibility is gradually decreasing in many areas. Hence, its sustainability has assumed local importance although the overall situation is more than satisfactory.

*Potentiality:* The potentiality is as follows:

Althamallik	135 quintals
Kalahandi	100 quintals
Khariar	590 quintals
Bolangir	100 quintals
Rayagada	300 quintals
Nowrangpur	70 quintals
Bamra	300 quintals
Bonai	80 quintals
Sundargarh	310 quintals
Karanjia	113 quintals
Total	2088 quintals

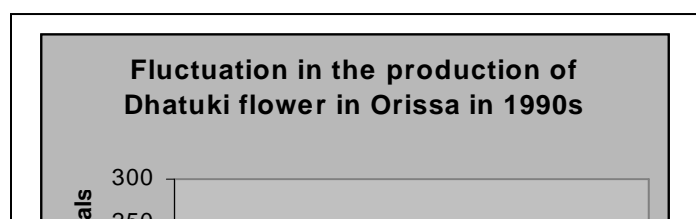
And the trend of production over the years is as below (in quintals):

1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
3476.70	2854	1559.35	2440.55	1256	2500	2132	178	1645

(Source: *A Decade of Forestry in Orissa:1981-90*)

1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
244.775	55.714	77.25	97.505	28.2	14.9

(Source: *Orissa Forests:1999*; figures in MT converted into quintals)



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The above statistics shows that between 1980-81 and 1988-89, the average production was 2004.62 quintals per annum whereas between 1992-93 and 1997-98, the average production was reduced to only 863.90 quintals per annum i.e., by 56%. This certainly indicates that the market for Dhatuki has undergone a negative change since 1990s which is, needless to say, not in favour of the primary collectors.

**PATAL GARUD**

*To be revised and updated. Please contact the author in case of any confusion.*

Patal garud or *Rauwolfia serpentina* is an erect & evergreen undershrub of maximum two feet height. Flowers may be white or pinkish & fruit a drupe of purplish black colour ( at maturity).

Its occurrence in wild is usually sporadic and what is remarkable is that it often grows in areas close to some human habitation.

The plant is distinguished from *Rauwolfia tetraphyla* by its elongated & shining leaves. *R. tetraphyla*, unlike *R. serpentina*, has generally four leaves in each node (hence the name tetraphyla) & the leaf length is smaller than that of *R. serpentina*.

*Rauwolfia as weed*

While enquiring about Patal garud, somebody told us at Dhenkikote that not too far was a place where large scale commercial cultivation of the plant was being privately practised. We were however also told that the roots collected there were not preferred by many.

So we went to Poipani, some 27 kms from Keonjhar town where we met Pratap Mohanta, whose paternal uncle had first planted the species (Patalgarud) in their back yard. The uncle is now no more with them, but what he planted years ago has now been naturally propagated covering almost the whole backyard area, thus creating problem like a weed. As a result, Pratap and his family members have no other choice but to uproot and throw them, particularly because it doesn't ensure any demand for itself. It did not take much time for us

*Local name* : Patal garuda, Bhui-keruan

*Trade name* : Patal garuda

*Seasonality and method of harvesting* : The harvesting period is usually during October to January (when the ground is not too hard, as in summer). The roots are dug out or the plant is uprooted as a whole for the collection of roots.

*Utilisation:*

The roots of *R. serpentina* are mostly used for medicinal purposes. They are consumed alongwith black pepper in case of snake-bite & are used in branded Ayurvedic products like *Sarpagandharista*.

*Reserpine*, the major alkaloid found in *R. serpentina* has a depressant action on the central nervous system and produces a lowering of blood pressure. Hence, the roots of Patal garuda are processed to produce Allopathic & Homeopathic drugs used in the treatment of hypertension.

*Restriction on extraction:*

The roots of Patalgarud are usually not allowed for commercial extraction. The species has long been declared as 'vulnerable' but the ban on commercial exploitation came much later than that. There has also been a ban on its export.

*Primary processing & value addition:*

The roots are to be carefully cleaned so as to keep the root-bark intact since the root-bark contains the maximum alkaloid content. They are sun-dried properly & drying may take approx. 15 days alongwith a weight loss of up to 70%.

The roots are so highly demanded in the market that wholesalers at Kolkata are ready to accept even ungraded & unsorted supply without any reduction in the price. The Orissa variety is considered to be of good quality. Still, roots of considerable thickness can be cut into pieces of 6" length.

*Adulterant:* Although the roots of *R. tetraphyla* are lower in the content of *Reserpine* (the major alkaloid) than the roots of *R. serpentina*, still they are used as an adulterant<sup>21</sup>. The

**A species unprotected ?**

The NTFP policy of March 2000 declares that Patalgarud being a restricted item, no permission for its extraction can be granted even to a govt agency without ensuring its sustainability. Accordingly, the DFO, Rayagada even refused to fix a minimum procurement price for it for the year 2001-02. However, the District Collector, Koraput and other officers pressurised him to allow its collection in his area (Rayagada Forest Division) by the women SHGs promoted by ORMAS (a govt agency) and the DFO finally agreed for the same with a condition that the amount of collection would be maximum 15 MTs. The limit fixed by the DFO indicates that the sustainability factor was taken into consideration. By the end of March 2002, ORMAS had collected 12 MTs (120 quintals) of Patalgarud roots (the specification was: 'finger size') in the said Division (*per com.* The Managing Director, ORMAS, 2-4-2002). However, a forest contractor estimated that the total amount of collection (semi-dried roots) by various authorised and unauthorised agencies in the Kashipur block alone (Rayagada) district was approx. 150 quintals in the said year whereas between 1993-94 and 1994-95, the average production in the same area was only 10.50 quintals per annum (Patnaik:1996). This clearly indicates that sustainability has not been ensured this time. In fact, the procuring agency hardly bothers about the sustainability and so are the primary collectors and it is quite possible that permission to ORMAS for the collection facilitated a collection beyond the sustainable limit to some extent. It is said that the collection in 2001-2002 has caused massive damage to the resource of *R. serpentina* in Rayagada district which would have far reaching effect on the production in the coming years. For ex., as the people of Mandibissi (Kashipur block) said, some 7 to 8 years back TDCC had lifted 20 quintals of Patalgarud (semi-dried?) from their region @ Rs 2 (raw?) to 7 (dry) per kg; but in the current situation even 50 kg (dry or semi-dried) collection is difficult to ensure.

This case study also suggests that the govt should have a separate list of threatened species and design specific policy guidelines for the same which has not been done in case of Patalgarud.

<sup>21</sup> The roots of *R. tetraphyla* can be fatal to humans, but the Maya Red-Indians of South America reportedly used them in the treatment of snake bites successfully. This plant is usually not found in the wild and if found in the jungles, it is supposed to be an escape from cultivation since this species is said to have been introduced in this country a few centuries ago.

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unadulterated variety is sold by the local traders as the Gr. I variety. Also used as adulterants are the other parts of *R. serpentina* such as stem although the roots are considered to be the best drug.

Adulterated ones, particularly the roots of *R. tetraphyla* seem to form the Gr. II variety. People generally distinguish these two varieties as *gaaeeaa/guaa* and *moinsheea* respectively although the identification may vary with locality and individuals.

Dried roots of *R. serpentina* break under pressure while the adulterants usually lack this property. The roots also have their characteristic taste and odour.

#### *Sustainable Production:*

The yield per plant is so less that people hardly practice any sustainable method for commercial extraction in the wild. The method is simple i.e., a portion of the root must be left intact in the soil during the collection.

For cultivation, propagation from seed is preferred (although seed collection is difficult) for two reasons:

1. Other forms of propagation like root cuttings etc. are not commercially very encouraging.
2. Roots produced from the growth of seedlings are more potent than that produced from root cuttings / stumps ( etc.).

The nursery should be located in partially shaded area with irrigation facilities. Seeds soaked overnight are sown in the middle of May in holes of 0.6 cm depth. The seedlings of 7.5 to 12 cm. height are carefully transplanted in holes 15-20 cm. deep and in rows 60 cm. X 30 cm apart in well-ploughed and well-manured fields. Irrigation is given at regular intervals to establish the seedlings, but accumulation of excess water is to be avoided. Weeding and manuring are done at appropriate times and harvesting is done after two or three years. The roots retain their potency maximum when the plant sheds leaves i.e. in winter and this should be the harvesting time.

Yield of fresh roots per plant can be more from the cultivated plants than that from the wild, if proper spacing has been provided during cultivation. It is approx. 100 gms., but can be upto 4 Kg in very successful cases.

#### *Potentiality:*

The official estimate is as follows:

Athamallik	1 quintal
Keonjhar	10 quintals
Balliguda	8 quintals
Total	19 quintals

*To be revised and updated. Please contact the author in case of any confusion.*

The estimation chart has missed, by mistake, to enlist the potentiality figures of some of the major potential areas of Patalgarud other than the above-mentioned areas<sup>22</sup>. These figures are however found in the Status Report of 1998 (compiled by the Forest Department itself) as follows:

Rayagada	50 qtls
Nowrangpur	5 qtls
Kalahandi	50 qtls
Total	105 quintals

The trend of production(in quintals) has been as follows:

1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
7.58	32.95	(ignored) <sup>23</sup>	0.15	18	19

(Source: *A Decade of Forestry:1981-90*)

1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
12.5	8.5	75	341.5	85	15

(Source: *Orissa Forests:1999*; figures in MT converted into quintals)

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<sup>22</sup> Significant potential of Patalgarud exists/existed in the Dashamantapur & Kashipur areas of undivided Koraput district and in 2001, total collection of Patalgarud roots (dry) in the Rayagada forest division was estimated<sup>22</sup> to be around 300 quintals (*per com.* Sri M.V. Ramana). Another potential area is the Khariar division where the current (2002) potentiality is supposed to be approx. 80 quintals per annum (by courtesy: Office of the DFO, Khariar).

<sup>23</sup> As per the source quoted above, the amount of production in 1982-83 is 49289.30 quintals which is just unbelievable. Enquiry made by this author revealed that the register maintained at the Office of the PCCF, Bhubaneswar recorded a production of 0.30 quintals in the Parlakhemundi Division while that in the Khariar Division was recorded as 49289 quintals. On the other hand, office of the DFO, Khariar confirmed us that there was in fact no collection of Patal garud in the same year, not to speak of the production figure.

*To be revised and updated. Please contact the author in case of any confusion.*

## **ANANTAMUL**

Anantamul or *Hemidesmus indicus* is a slender creeper distinguished by its leaves that are often variegated with white above. The roots are woody & aromatic and form the commercial part of the plant.

*Local name* : Anantamul, Chemediloi, Baskhapri

### **Finite and Infinite**

Anantamul literally means the root without an end. But Antamul means just the opposite i.e., root of a finite length. Antamul is a different species (*Tylophera indica*) and is otherwise known as *mendhi* unlike *H. indicus* which is known as *sugandhi* (literally meaning, fragrant).

*Trade name* : Sugandhi / Anantamul

*Seasonality and method of harvesting* : The roots are usually collected during the rainy season and stocked for trading during the other months. But for immediate sale, harvesting may take place any time.

### *Utilisation:*

The use is mostly in the herbal medicines. The roots of Anantamul are said to be the only hope for the Psoriasis (a dreaded skin disease considered as a kind of leprosy in Ayurveda.) patients. *Saribadisalsa*, *Sarivadyasava* & *Saribadyarista* are two well known branded products made from this root. The root-paste facilitates hair growth on bald heads. Other therapeutic uses are in the treatment of eczema, leucorrhoea, urinary complaints, loss of appetite & fevers, etc.

### *Restriction on extraction:*

Same as for Bhuineem.

### *Primary processing & value addition:*

The roots are cleaned & dried properly. Complete drying may take approx. 20days alongwith a weight loss of up to 70%.

The roots are sorted for grading. Root-pieces of 2” length & 0.5” thickness are considered to be of the 1<sup>st</sup> grade.

*Adulterant* : Roots of *Ichnocarpus frutescens* ( called Shyamalata, Suanloi or Krushna Sariba) are considered as substitute of Ananatamul roots, but the therapeutic equivalence has not been established. Anantamul, unlike the roots of Suanloi, has a characteristic odour of fresh ground-nut and also the leaves of two plants are very much

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different. However, since a greater amount of collection is possible from *I. frutescens* than from *H. indicus*, hence the primary collectors often collect the roots of the former for adulteration so as to 'increase' the amount of the Anantamul collected.

*Sustainable extraction:*

Primary collectors find it easier to collect the roots in the rainy season when they just drag the plant and a portion of the root comes out from the soft soil. This way some part of the root remains within the soil which helps for regeneration.

The plant can be propagated by root cuttings. Roots collected in June-July or more preferably in February-March are transversely cut into pieces of 10cm length, which are planted in rainy season either vertically or horizontally (in sand). The sand bed regeneration can be transplanted again.

Seedlings, when four-leaved, are transplanted first to polythene bags and then planted in the field after two months in 30 cm<sup>2</sup> pits spaced at 50 cm × 50 cm (Sumy et al:2000).

*Potentiality:*

*H. indicus* occurs very sporadically in waste lands & jungles and as such, the potentiality in Orissa is not very high. For ex., in Mayurbhanj district, the maximum production possible per annum is supposed to be approx. 100 quintals (dry), that too adulterated with the roots of *Ichnocarpus frutescens* (*per com.* Sri N.D.Pyne). Hence, potentiality of pure Anantamul in the district can be presumed to be approx. 50 quintals. Accordingly, the total potentiality in Orissa can be safely taken as approx. 200 quintals per annum. However, the amount may be reduced by 50% in the year succeeding that of procurement unless there is a break for two years immediately after the collection.

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## **PART: II**

### **Implications on the Livelihood of Primary Collectors**

### **GLUTINOUS BARK**

It seems quite probable that gradual increase in the demand and decrease in the availability of *Persea macrantha* bark facilitated a desperate search for some natural alternative as a result of which trading of the bark of *Litsea* species assumed so much importance in Orissa during the last 10/12 years.

#### *Commercial growth of a bark*

Medha Chhali was reportedly being collected & traded in Orissa even in 1940s, though on a much lower scale than now. Sawarmal Gadodia, a former lease-holder of Rajgangpur describes the trend of the wholesale price of this bark (dry) during the last 60 years as follows:

1940	:	Rs. 0.25/kg
1960	:	Rs. 2/kg
1996	:	Rs. 14/kg
2002	:	Rs. 30/kg

The demand now is twenty times of that in 1960. And the reason is obvious; number of Agarbatti industries has increased manyfold.

How the primary collectors got benefited from this trade, was studied at Rastuguda. Rastuguda is a small village a few kilometres uphill from Mandibissi in the Kashipur block of Rayagada district. It was here in 1938 that specimen of *Persea macrantha* was collected from the wild.

The village is inside the Rastuguda Reserve Forest, but one can see that the RF rather looks like a ravaged forest. Some 43 Kandha HHs inhabit Rastuguda and all of them are below poverty line. These tribals are marginal farmers practicing step (terrace) cultivation and needless to say that the agricultural produce does not meet the annual domestic requirement.

Mohua & Hill brooms are the major NTFPs on which they have been traditionally dependant, but the financial situation is such that they agreed to invest their labour @10 paise per Kg (raw) of *Mashani Chhali* when the trade was introduced in their area some 10/12 years ago. The rate was revised two years back & they got Rs. 2 per kg and last year it reached upto Rs. 6 or 7 per kg. The maximum income per family from this source was Rs. 1000 to 1200 last year.

The collection was during the drier seasons, particularly in summer, because in other months they are engaged in their fields for the *dongar* (step) cultivation. The collection season as well as the income from the bark more or less coincide with that of another major NTFP i.e. broom grass (*Thysanolaena maxima*), but the former usually extended beyond the latter because of the following reasons:

1. Broom grass, if not collected at the proper time of harvesting, gets reduced in quality whereas bark collection doesn't have any such problem.
2. The tribals can sell the bark raw, but the broom grass only after drying which takes additional time.

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3. The number of gradations hardly exists for that of the Mashani bark.<sup>24</sup>
4. Last year, broom grass fetched them Rs.7 per kg (dry) whereas the Mashani bark fetched more or less equal amount at the raw stage.

However, bark collection was an unsustainable practice while broom grass collection was more or less sustainable. So, at present, the future of broom grass collection is bright while bark collection has reached its minimum as the concerned species has been depleted in the area. However, the Kandhas of Rastuguda do not appear to be worried about that. It seems that they have taken it easily & do not repent for the loss accrued due to the unsustainable practice of Mashani bark collection.

The rate available to the primary collectors of this bark gradually increased throughout the state with decrease in the potentiality in the wild as well as increase in the wholesale rate in the market. But this increase was not always or everywhere very proportionate probably, due to the conspiracy at the agents' (middle men) level. Following table illustrates the above:

Year	Primary collectors per kg (raw)	Wholesale price per kg(dry)
1989	10 to 20 paise	Rs. 5
1991-93	40/50 paise (almost same for both grades)	Rs. 10
1995-96	Gr.-I: Rs.1.50 Gr.-II: Re. 1	Not available
1996 (after shortage in supply)	Gr.I: Rs. 2.25 Gr.II: Rs. 1.50	Rs. 14 to 15
2001	Gr. I: Rs. 4 to 6 Gr. II: Rs. 2.50 to 3.00	Rs. 25 to 30

However, decrease in potentiality also meant increasing labour in collection. For ex., villagers of Mituani (near Thakurmunda in the Mayurbhanj district) had to cover an area of 10 to 20 kms radius (or, more?) for the collection. A good-size tree can yield up to 2 quintals of raw bark & this amount of collection needs the labour of 3 to 4 people per day (7 am to 7 pm). This way, the primary collections could get Rs. 100 or even more per day (raw) & the scope of maximum earning was Rs. 3000 to 5000 per month. But the job was tough & the primary collectors felt that they were not getting what they deserved. Hence, in some parts of Thakurmunda (one of the periphery areas of Shimlipal Bio-sphere Reserve) they demanded Rs. 8 to 10 and Rs. 3 per kg (raw) for the Gr.-I & Gr.-II varieties respectively<sup>25</sup>. However, this was hardly fulfilled. The failure might be attributed to the following reasons:

1. The demand was before the local agents who used to get 50 paise commission per kg(dry) and who reportedly exploited the pr. collectors in various ways. Had the pr. collectors contacted the lease holder directly, the result could have been different.

<sup>24</sup> Four different grades are distinguished by the traders in the quality of broom grass.

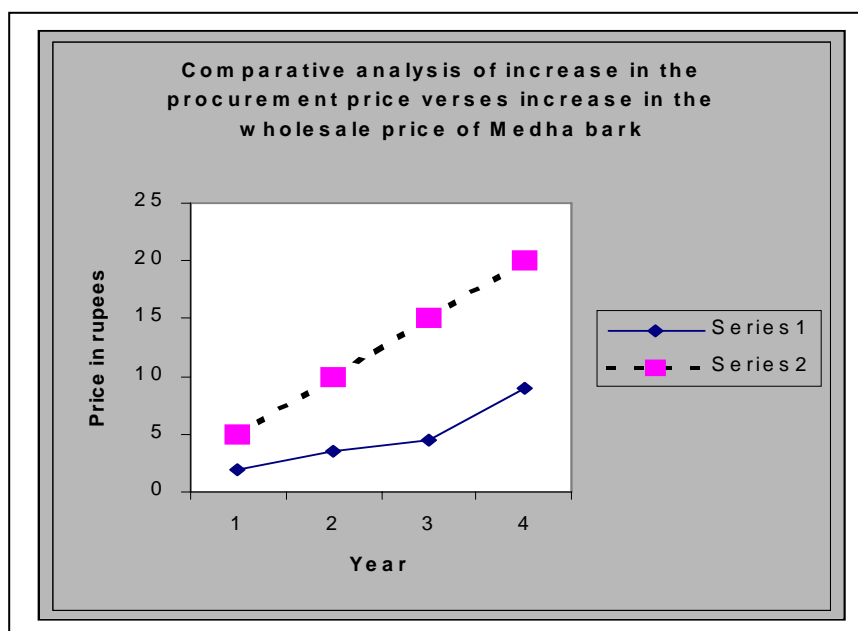
<sup>25</sup> Chairperson of Thakurmunda Panchayat Samiti, after being approached by the primary collectors, also raised her voice against the alleged underpayment(*The Prajatantra*, 15-5-01); but it was too late.

*To be revised and updated. Please contact the author in case of any confusion.*

2. The awareness & determination for demanding a greater price came late as the leases were on the verge of cancellation by the Forest Department.

Some of the lease holders of Baripada used to procure dried as well as chips of the bark from the primary collectors of Shimlipal at the weekly *haats*. These pr. collectors had been asked to bring the material in the specified condition and drying the bark was comparatively easier for them as they used to dry it on rocky outcrops inside the forest. The outcrops were large and being hot under the sun, these outcrops facilitated drying of the bark from below while the upper surface was being dried under the sun directly. This kind of value addition fetched them the following rates (*per com.* Sri N.D. Pyne) and each collector used to bring approx. 30 kg material in a week:

Year	Pr. Collector (Series:1)	Wholesale price (Series:2)
1989 (year:1)	Rs.2	Rs.5
1991-92(year:2)	Rs. 3 to 4(average value:Rs.3.50)	Rs.10
1995-96(year:3)	Rs. 4 to 5(av. value:Rs.4.50)	Rs.15
1999(year:4)	Rs. 8 to 10(av. value:Rs.9)	Rs.20



The above graph clearly illustrates that the rate available to the primary collectors did not increase proportionately with the increase in the wholesale price, between 1989 to 1995-96. Hence, the pr. collectors were still in loss during that period. Although this deviation was corrected after 1995-96, despite a hike in the wholesale price by 50 % in 2001-2002, the pr. collectors of Gr.I Pojo are in loss again since the bark now coming mostly from the regenerated young trees is practically useless as it, being immature, is yet to be enriched in the adhesive component. This extra-thin bark is so brittle that keeping it intact during packing in gunny bags is very difficult. Hence, such material is being rejected by some of the traders while the Gr. II

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variety or *Lal-Pojo* is being paid @ Rs. 5 to 6 (dry) as the bark of this latter grade is of considerable thickness due to abundant resource of the mature trees of the so-called male Pojo.

Still, there are reports that after the cancellation of leases, illegal collection has given some scope to the pr. collectors for getting better prices.

Collection of Mashani bark was /is a full time occupation in its season. Except the rainy season in which entry into the forest is more difficult due to the presence of Indian Cattle-leaches & snakes and also which demands greater engagement in the paddy fields, the collection is carried out almost in all other seasons.

However, the ban on the collection of this bark seems to create trouble sometimes for the innocent primary collectors. One such instance was narrated by the women of Khadal caste who reside at Kalasandhapur near Aska and regularly supply a number of medicinal plants/roots to the Ayurvedic pharmacies of Aska. Every morning they go for the collection and return in the afternoon to dispose off their produce with the pharmacies. As they sell their collection in raw i.e., without processing, the rate which they usually receive for most of the items is Rs. 2.50/kg. Still, the average income per day is approx.

Rs. 40 (or more) per person. These primary collectors are happy with this income, but they allege that the forest officials often suspect them of despatching the Mashani chhali and hence it becomes difficult for them to collect their materials from the forests. What is interesting is that the pharmacies of Aska do not need Medha chhali at all.

As regards the employment opportunity generated by Medha bark, if we assume the rate of sustainable production at 1500 quintals(dry/semi-dried)/year, then a procurement price @ Rs.8/kg would mean 24000 man-days in terms of minimum daily wage of Rs.50/-.

### *A crisis in livelihood*

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The Times of India

August 27, 2001

#### **AN INDUSTRY SPREADING ON THE WINGS OF PERFUME**

By JAYANTA GUPTA & MONOTOSH CHAKRABORTY

BARUIPUR : What had begun as an alternative source of income for peasants during the months when they did not have any agricultural occupation has today become a thriving industry providing employment to nearly 50,000 people, directly and indirectly. Nearly 70 per cent of agarbattis sold in West Bengal today are manufactured in and around Baruipur.

Till around 30 years ago, Bangalore was the only source of the raw sticks which were dipped into perfumed solution to give incense sticks their final shape. There are two processes by which the raw stick is usually manufactured. One is the tana (drag) and the other is known as the dola (roll) process. Manufacture of the tana kathi is much easier and that was the process initially followed. We started the manufacture of the other variety later, said Narayan Choudhury of Geetasree Perfumery Works.

There are two kinds of raw materials required for the industry and both have to be brought in from neighbouring states. The stick that forms the base comes from Tripura. The kind of bamboo used to make these sticks is known as muli bans and are not found in sufficient quantities in West Bengal. At least 12 truckloads of the item leave Tripura for West Bengal every day. Each truck contains 200-230 sacks of 40 kg each, Choudhury said.

The major problem arises in the procurement of tree barks from which the adhesive is prepared. This adhesive is used to bind the charcoal mixture to the stick. With the Supreme Court order banning felling of trees, the barks have become difficult to procure. In spite of this, the material arrives from Assam, Orissa and Bihar though the prices have gone up from Rs 3-4 per sack to Rs 20-25. The perfume is readily available at Ezra Street in Kolkata.

Earlier, there was no provision for milling of the bark and charcoal in Baruipur. After Choudhury set up a pulveriser in the area and began to supply the milled raw material to the smaller units, things got better and production increased. In fact, Choudhury owns one of the only two existing pulverisers in the state. However, he also complains that the total capacity of his machine is around three tonnes per hour and he can't find a sufficient number of people to supply the raw material to. [pg 18] The material after reaching the various units are turned over to the workers for the actual manufacture. The workers are spread over the nearby villages or in areas like Champahati and Lakhikantapur. The women who have learned the process here get married to other places and set up units there. This is how the industry is spreading its wings. Earlier, there were seven to eight people engaged in every unit, now there are 2,000 people attached to the larger ones, Choudhury claimed.

The manufacturers claim that business has grown in recent times but also complain that competition has gone up considerably. Some of the larger units like Choudhurys, are also involved in the process of dipping the raw sticks into the perfumed solution. Others simply sell the raw sticks to shops in Burrabazar. An estimated 300-400 sackfulls of the sticks are sent to Burrabazar every week where they are dipped in perfume and packed.

We can't compete with the products from Bangalore as the units there are larger and labour is more skilled. They are also better paid. The marketing skills of these units are also much better and we can't keep up, Choudhury said. He also said that the much sought after durbar sticks can't be manufactured in West Bengal due to the weather. These sticks are exclusive products from Ahmedabad. (by courtesy: World Incense News, [www.ccwf.cc.utexas.edu/~fugue/win](http://www.ccwf.cc.utexas.edu/~fugue/win))

### ARJUN BARK

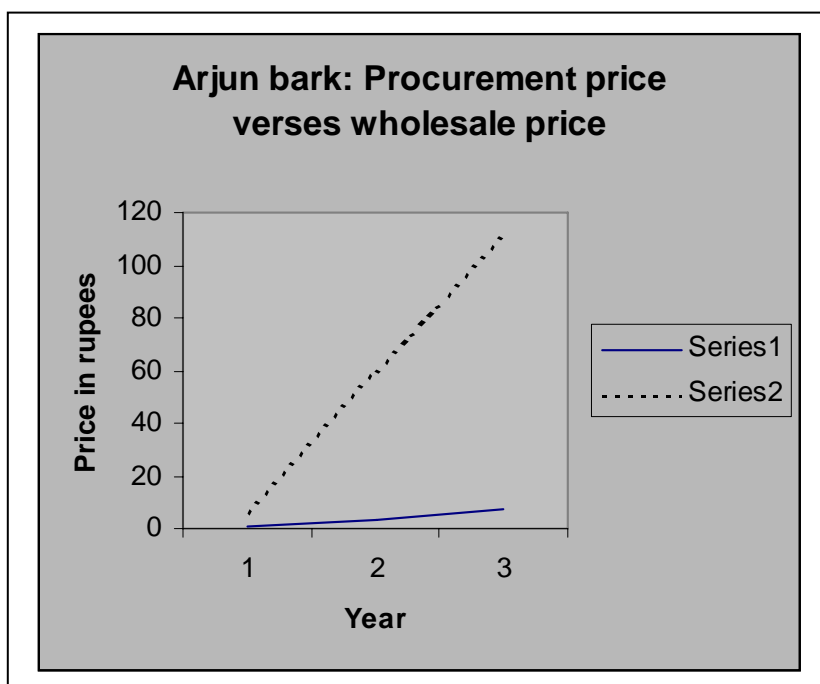
High potentiality of this bark has failed to come to the rescue of poor collectors primarily due to little demand in the market. As a result, while comparatively scarce (locally) Dhatuki flower is bartered in the Bamra area for salt (ordinary i.e. not iodized or processed, which has a rate of approx. Rs. 2 per kg) on 1:2 basis, easily available Arjun bark (1 kg) fetches only 500 gms of salt. At best, primary collectors can get Rs. 3 (raw) and Rs. 5 to 6 (dry) per kg of this bark at present.

According to Sri N.D. Pyne (a forest contractor), collection of Arjun bark is comparatively less laborious because:

1. Arjun tree is rather found in abundance in the non-core areas of forests and in the village areas. So the access is easier.
2. Its harvesting is also easier because a single stroke can remove a strip of 10 to 20 kg of raw bark.

And the rates (for quintal of bark) have changed as follows (*per com.* N.D. Pyne:2002)

Year	<u>Series:1</u> Pr. collector (raw)	<u>Series:2</u> Wholesaler (dry)
1962-63 (year-1)	50 paise	Rs. 5 to 6 (av. value:5.50)
1978-79(year-2)	Rs. 3 to 4 (average value: 3.50)	Rs. 60
1989(year-3)	Rs. 7 to 8 (av. value: 7.50)	Rs. 110



*To be revised and updated. Please contact the author in case of any confusion.*

The graphical comparison clearly indicates that the increase in procurement price was not directly proportional to that in the wholesale price which means that the primary collectors did not get full benefit from the hike in procurement price.

Trained people can collect at least 10 to 15 qtls. of raw Arjun bark per day, says Pyne. However, Mathuri Khadia, a primary collector of Rasamtola (Karanjia) finds the job laborious & thus demands Rs. 5 per a bunch of 100 gms. (raw) because he says that it takes him almost a day to collect 1 kg. (raw) of this bark and a major reason behind this much difficulty is the scarcity of Arjun tree in his village area.

Collection of Arjun bark is not a full-time occupation in the state at present. Even the ban on its collection made almost no difference in the situation as little market demand did not give the scope to the primary collectors to bargain for an illegal collection.

If we assume the sustainable production of this bark at 10000 quintals (dry)/year, then a procurement price @Rs.3/kg (dry) would mean employment opportunity of 60000 man-days in terms of the minimum daily wage of Rs.50/-.

*To be revised and updated. Please contact the author in case of any confusion.*

### **ASWAGANDHA**

High demand but negligible resource of this root has, on one hand, forced the local *vaidyas* to search for and use local alternatives (see box) and on the other hand, has facilitated commercial cultivation of the species in recent years.

Sabuja Viplab, a Bolangir-based NGO, inspired some people of the district to take up the cultivation of Aswagandha on a commercial scale. About ten HHs of Khaliapali, Baghapali and Dungripali began the cultivation in 2000 and the success was such that the annual income of the cultivators of Dungripali got increased by 21% from this source in 2000-2001(Jayeeta Sen and Prakash Kumar: 2001).<sup>26</sup>

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<sup>26</sup> The cultivators suffered loss in 2001-2002 due to heavy rainfall since water logging damages the crop.

### **BHUINEEM**

Despite its high potentiality in the wild, Bhuneem significantly lags behind its Himalayan counterpart (*Swertia chirayita*) both in rate<sup>27</sup> & demand as the latter is considered much more better in quality & effectiveness and also because, supply of the former exceeds its demand.

And the result is that primary collectors hardly get more than Rs. 1.50 per a kg of the raw Bhuneem. In Bamra area, women collectors prefer to barter it with salt on 1 (dry): 5 basis<sup>28</sup> if they have a large collection. Other wise, they sell small bundles of dry Bhuneem @Re. 1 each (approx. 25 gms).

In many parts of Orissa, Bhuneem has been a regular (but seasonal) item, which the women collectors sell alongwith brushwood & Sal leaves, but it is not always that they get what they deserve. For ex. Mrs. Pan Hansda of Badsol (near Jashipur) used to get 50 paise & one rupee for the raw & dried Bhuneem respectively, from the local traders in 2001 whereas she expected at least Rs. 3 & Rs. 5 respectively for her labour. Hence, she abandoned Bhuneem collection for selling.

A case study was made in the Sanmudaloi area of Kuchinda where women collected Bhuneem on a large scale for their newly established SHGs. The average collection per day was about 6 kg(raw). The collection was delayed due to the engagement in paddy fields and the women were paid @ Rs 3/kg (dry). In the previous year they were offered at best Rs 2/kg (dry) and bartering was also practised, but the collectivisation process through the creation of the SHG gave rise to competition among the traders as a result of which there was a price hike which benefited the pr. collectors. Still, the collection ranked very low in its contribution to the total annual income.

Traditionally the people of Sanmundaloi area collected more than six different NTFPs which ranked as in the following (on the basis of average income potential per day per person):

Item	Collection/day (raw and unprocessed)	Weight on drying/primary processing	Rate in rupees (dry/processed)	Income in rupees
Medha bark	20 to 30 kg	10 to 15 kg	4	40 to 60
Mohul	15 to 20 kg	7.5 to 10 kg	5	35 to 50
Sal seed	10 kg	7 <sup>29</sup> kg	5	35

<sup>27</sup> The procurement price of *S. chirayita* at Kolkata was about Rs. 240/kg in January 2002.

<sup>28</sup> The traders take the produce on weight basis, but give the salt in containers of various sizes. Accordingly, when they claim that their container contains one kg salt, it actually contains an amount quite less than that (for ex. 750 gms). Thus, the primary collectors are betrayed and it is thus clear that what the women of Bamra thought as 5 kg salt must have been quite less than that since the average bartering ration is 1:1. However, the salt which is exchanged for Bhuneem is quite a significant gain for the poor people since it is one of the major essentials in their food habit and packaged salt (iodised) would cost them more than double the rate at which this uniodised and coarse-grained salt (exchanged for Bhuneem) is sold in the local markets. Hence, the pr. collectors often prefer salt than cash payment in some of the areas like Kuchinda.

<sup>29</sup> Unlike other items, primary processing of Mohul and Sal seeds may need more than one man-day (because, besides drying which requires negligible engagement from the pr. collectors, some additional work is also to be

*To be revised and updated. Please contact the author in case of any confusion.*

Siali leaf	10 kg	4 kg	4	16
Thorny broom	20 bunches ( <i>mutha</i> )	15 bunches( <i>mutha</i> )	1 <sup>30</sup>	15
Dhatuki	10 kg	5 kg	2	10
Bhuineem	6 kg	3 kg	2.50	7.50

*(per com. Ms. Bharati Mahanto:2002)*

Thus, it is quite clear why Bhuineem collection is a part – time occupation for the primary collectors although in exceptional cases like that in Kuchinda it might be done on full time basis.

As per the Forest Department records, the ‘value’ (procurement price?) of Bhuineem (Chireita) was only Re.1/- per Kg during 1989-90 to 1991-92. That way the price has increased atleast by 150 % if the present price at Rs. 2.50/- is compared. However, according to Sri Nathumal, a forest contractor of Bagdihi, the price has remained more or less the same during the last 30 years.

Fluctuation in the procurement price of Bhuineem is reflected to some extent in the following table (data by courtesy TDCC):

<i>Year</i>	<i>Procurement price/quintal</i>	<i>Sale price/quintal</i>
1993-94	200	260
1994-95	50	260

Moreover, the amount of salt to be exchanged with Bhuineem is not uniform but varies according to the distance of the collection area from the nearest stockist/big trader. Accordingly, the ratio may be 1:2 or 1:3. Where transportation cost is less or negligible, the ratio is 1:3.

TRIFED estimated<sup>31</sup> the production potential of Bhuineem at 100 MTs. If we assume the same as 700 quintals (dry) per annum, it would mean an employment opportunity of 4200 man-days only in terms of a minimum daily wage of Rs.50/-, as against the procurement price of Rs.3/- per kg.

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done for making it saleable) and this way the labour invested against these two items can be equivalent to that of 1.5 man-days.

<sup>30</sup> Turning the raw material into broom form by tying them in bunches may fetch Rs. 4 per broom, but this is not always done by primary collectors probably because the process of tying is actually much more critical than that for the hill brooms.

<sup>31</sup> Based on the document distributed at the ‘State Level Seminar on New NTFP Policy’ organised by TRIFED and held at Bhubaneswar on 23<sup>rd</sup> June, 2000.

*To be revised and updated. Please contact the author in case of any confusion.*

### **RITHA**

Negligible or almost no potentiality in the wild as well as comparatively inferior quality has made the locally produced Ritha almost a non-existing item for the forest dependant primary collectors of the state.

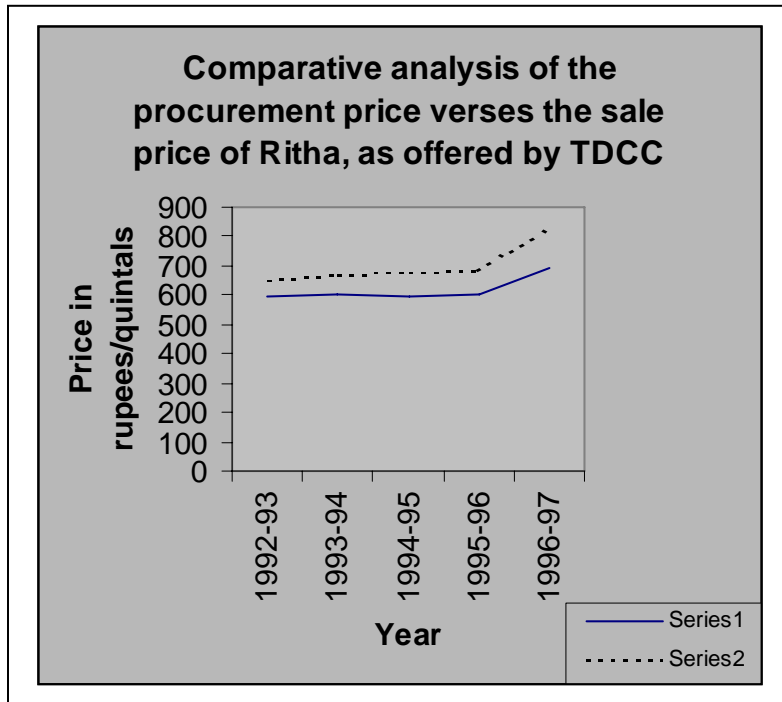
In Rayagada district, where there is the maximum potentiality, the produce is owned by individuals who have one or more trees of Ritha on their private lands. A full-grown tree can produce 25 kg. mature Ritha fruit on an average per annum. Small trees can yield  $\pm 9$  kg of the same. And the rate available to the primary producer ranges from Rs. 8 to Rs. 12 (max.) per kg. The fruits are partly used for local /personal consumption also & in fact, this seems to be the first priority in many cases. Hence, doing business with Ritha is often of secondary importance for these producers. And needless to say, it is of secondary importance in the livelihood of the primary producers in general. Also, this year the rate has been reduced by about 50% in comparison with last year's price and the local demand is also dwindling due to the increasing consumption of shampoo & hair conditioners. Hence, the scope of making Ritha a source of livelihood is gradually decreasing.

In Narayanpatna area, the Ritha producers sell the semi-mature fruits @ Rs. 10 to 15 per *man* (i.e. approx. 2 kg).

The trend of procurement price verses that of the sale price is reflected in the following table (data by courtesy: TDCC):

<i>Year</i>	<i>Procurement price/quintal</i>	<i>Sale price/quintal</i>
1992-93	595	653
1993-94	600	675
1994-95	597	680
1995-96	600	686
1996-97	695	821

To be revised and updated. Please contact the author in case of any confusion.



TRIFED estimated the production potential of Ritha at 100 MTs in the state, but it would be safe for us to assume it at 200 quintals/annum and accordingly, the employment opportunity generated as against the procurement price of Rs.8/kg would be 3200 man-days in terms of the minimum daily wage of Rs.50/-.

### **SHIKAKAI**

This is a product whose potentiality has not been fully utilised in the state, probably due to lack of high scope in the major *mandis* (wholesale markets of Raipur, Kolkata, etc). Shikakai, unlike Ritha, is not locally consumed usually & its market depends entirely upon the demand from outside of the state. This probably may be a reason of the apparent unawareness of the primary collectors about this item in some of the potential areas, as we found at Dhalabani, a village in the periphery of Shimlipal.

A trader from Jashipur had tried in 1998 to engage the primary collectors of Dhalabani & Badsol etc. in the collection of Shikakai. Of some 50 families approached, only 2 or 3 actually responded but only a small quantity could be collected despite an offer of Rs. 10 to 12 kg (semi-dried). In 2000, the collection amount increased up to 4 quintals (semi-dried) without any significant increase in the rate, but in 2001 it was reduced to 1.5 quintals despite an offer of Rs. 15 per kg. The reason behind this decrease was found to be the availability of other convenient options like working as a labourer in the development projects (for ex., road construction) undertaken by the Panchayats in the villages. The number of families engaged was less than 10 & it appeared that the primary collectors were not very much interested in the Shikakai collection.

However, when we approached the villagers of Dhalbani, they first failed to identify the sample; but showed much interest for an offer for its collection. It seemed quite clear that they just wanted to know the rate & if we could have offered them a better price, they would have certainly made a collection for us. However, they themselves appeared uncertain about what price would be feasible for them.

In Badsol, we met two or three women who had experience in Shikakai collection. It came to be known from them that some 10 yrs. back they first collected some Shikakai after getting an order from a trader, but the rate available was just 25 to 50 paise per kg which was not feasible since collection of this fruit is a difficult job as the branches are thorny. Maximum collection capacity was 3 to 6 kg<sup>32</sup> per day per person & that way the rate was much below the minimum daily wage (if we take it Rs. 25 per day). So they had to reject the offer after the initial experience.

A trader from Rayagada, who collects Shikakai in the Kashipur block, asks the primary collectors to bring only raw fruits since he fears that if they would bring semi-dried or semi-mature fruits, then they would also demand higher rate & that too, the rate applicable for the completely mature dried fruits (i.e. Rs. 11/ kg). Hence, the trader finds it convenient to collect the fruits in raw & pay only one or two rupees per kg to the collectors. The wholesale rate of Shikakai is said to have been reduced at Kolkata market from Rs. 30(dry) last year to Rs, 17 or 18 this year. According to Sri M.V.Ramana, the price has gone down by 50 to 60% during the last five /six years as a result of which the price available to the pr. collector has been reduced from Rs. 19 last year to Rs. 11 this year.

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<sup>32</sup> They used to bring dried, semi-dried & raw fruits & the rate was for the mixed item.

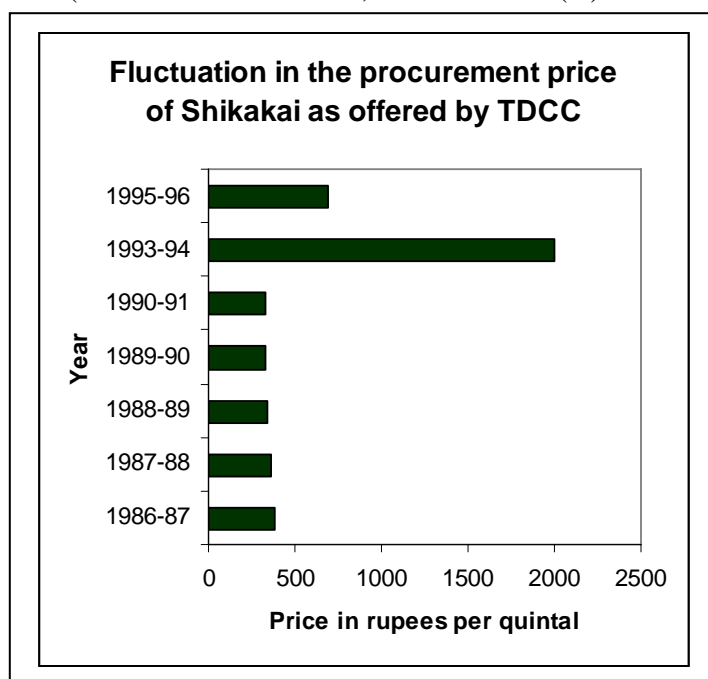
*To be revised and updated. Please contact the author in case of any confusion.*

However, the rate which the pr. collectors of Shikakai are getting, varies in some cases. For ex., some tribals have sold their collection @ Rs. 8 per kg at a grocery shop of Rayagada this year (and the shopkeeper sells them @ Rs. 10/ kg) while VANANEE, a sales counter operating at Bhawanipatna on behalf of a voluntary agency, claims to have purchased raw fruits from the Kandha primary collectors of Thuamul Rampur @ Rs. 10 kg with a selling price of Rs. 60 kg (dry).

The fluctuation in the procurement price is reflected in the following table (the rates were offered by TDCC):

Year	1986-87	1987-88	1988-89	1989-90	1990-91	1993-94	1995-96
Rate (in rupees) per quintal	386	361	344	329.95	326.25	2000	695

(Source: Pattnaik:1996, Annex. XXIII(A) and TDCC)



The production potentiality of Shikakai taken as 500 quintals per annum, the employment opportunity generated from this source would be 8000 man-days as against the procurement price of Rs.8/kg, in terms of the minimum daily wage of Rs.50/-.

*To be revised and updated. Please contact the author in case of any confusion.*

***PALUO***

*To be revised and updated. Please contact the author in case of any confusion.*

Paluo is an item whose market potential has not been properly explored despite its nutritional & medicinal value. Most of the production is consumed locally though not equally in all areas.

The Khadias of Shimlipal are well-known for their expertise in the collection & processing of wild Paluo. But their dependency on this item varies to various extents depending upon the place where they reside.

For ex., the Khadias of Baniabasa (near Khunta in the north of Shimlipal forest) usually collect Sal resin, Honey & Paluo & do not collect gum. The average income per family from these sources is as follows:

Rs. 2000 to 3000	:	Honey
Rs. 1000 to 1500	:	Sal resin
Rs. 1000 to 1500	:	Paluo

Collection of these three items is their major occupation throughout the year although to sustain themselves, they also have to depend other forest products (like *Jangli Alu* which they eat) and if possible, on farming (some of them are marginal farmers).

However, their counterparts residing (rehabilitated) at Kapand (near Jashipur in the west of Shimlipal) collect gum & roots of Akanbindi<sup>33</sup> in addition to the above three items. And the average income per family per season is as follows:

Honey	:	Rs. 2000 to 3000
Sal resin	:	Rs. 2000 to 3000
Paluo	:	Rs. 1000 to 1500
Gum	:	Rs. 400 to 500

The engagement is rotational, for ex.,

Paluo	:	December – January
Gum	:	February – April
Honey	:	May – June
Jhuna	:	September – November

There is however no fixed investment of labour in the collection & processing of the above items. For ex., 10 kg Honey or Jhuna can take just one day or some times 8 days for collection, Similarly, it takes 15 days for a tree to yield the gum after being axed, so the whole process of gum collection 10 kg. might actually involve just two or three man-days. Likewise, the whole process of wild collection of rhizomes & preparation of 10 kg Paluo starch might take 15 to 16 days. Each person can collect 50 to 60 kg rhizome per day in the potential area.

The rates which they get at Kapand are as follows:

Jhuna	:	Rs. 20 to 25/ kg
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<sup>33</sup> *Cissampelos pareira*

*To be revised and updated. Please contact the author in case of any confusion.*

Honey : Rs. 60 to 65/ kg  
Paluo : Rs. 80 to 90/kg

However, the rehabilitated Khadias of Kapand are finding it increasingly difficult to operate from this area (i.e. Kapand which is situated in the periphery of Shimlipal) since the potential area (i.e. Shimlipal) is miles away from there. This means additional labour which assumes more difficult form due to the restrictions of Forest Department as Shimlipal is a protected area. Hence, they are now able to collect only a part (they claim 50 %) of what they originally collected before rehabilitation as the inhabitants of Shimlipal forest. It is true that traders coming to them give 10% or more than the price given to their counterparts in the forest (because the access is easier at Kapand), but if the collection is 50% less, then rehabilitation has caused a great loss to their livelihood. In fact, this is the reason why many of the rehabilitated Hill Khadias left Kapand & went back to the forest.

Throughout the year, these Khadias of Kapand get some income from the collection of *Ranuchero* (Akanbindi roots). They claim it to be Rs. 150 to 200 per week @ Rs. 5 or 6 per bundle. This root is used by the Handia makers, but it seems that such an amount of income is not regular. They themselves look at this collection as a secondary occupation.

During the rainy seasons when the collection of forest produce is reduced to the minimum, they work as agricultural labourers and get 4 kg paddy/male and 2.5 kg paddy/female for a day's labour.

Naveen Kumar of Jashipur, who has been in the Paluo trade since 1990, says that despite a scope, the rate of Paluo in the Mayurbhanj district has not increased much in the last 10 years. For ex., in 1990, the wholesale price was approx. Rs. 65/kg against a procurement price of approx. Rs. 55 to 60 per Kg whereas the current procurement as well as wholesale prices are approx. Rs. 70 to 75 and Rs. 75 to 80 per Kg respectively. The reason behind this small increment in last 12 years is an artificial balance created by the local traders 'in agreement with the pr. collectors' who fear that once their product becomes more costly, comparatively cheaper substitutes like Cassava & Arrowroot would take over the Paluo market. As said earlier, Cassava & Arrowroot starch look very much like the Paluo starch, but the rates of the former are considerably less than that of Paluo. If Paluo trade has still survived, then it is because of its popularity in the local people; but a greater increase in the price might prove 'fatal' for its trade. Hence, the balance has been created.

The officials of VANANEE claim that they staff pay Rs. 120/kg of the Gr.I Paluo to the collectors of Phulbani district while Rs. 40 to 45 is paid to the suppliers of Gr. II Paluo who come from the Koraput side.

TRIFED estimated the production potential of Paluo in the state at 55000 quintals/annum. This would imply to an employment opportunity of 66 lakh man-days as against the procurement price of Rs.60/kg, in terms of a minimum daily wage of Rs.50/-.

***DHATUKI***

*To be revised and updated. Please contact the author in case of any confusion.*

The situation is similar to that of Bhuineem as regards the potentiality & market demand. A days labour may fetch 5 to 6 kg of this flower (raw) which on drying is reduced to 2.5 kg or less. However, proper drying may reduce the amount to 1 kg or less. But the rate available to the primary collectors is hardly Rs. 4 or 5 per kg (semi-dried).

A case study was taken up in the Chetenga village of the Paikmal block in the Bargarh district and it was learnt that only a few HHs (women) of the village were involved in the collection of Dhatuki flower since agricultural labour or the collection of Sahaj *lassa* (gum) appeared more promising for the village women than the collection of this flower. Although the local purchaser is now offering them a higher price (Rs. 3/kg of dried flower) than that was last year (Rs. 2/kg), still it is not a better option for them since the maximum collection potential per man day is 6 kg(raw) on an average which on two days drying is reduced almost by 50%. Hence, a day's collection of Dhatuki would fetch them Rs. 9 whereas if they invest their labour in the agricultural fields or in the collection of Sahaj gum, the income is often higher. For ex., a woman labourer (agricultural) gets Rs. 20 per day and if she went for the collection of Sahaj (*Terminalia tomentosa*) gum (the collection potential per man-day being 500 grams on an average, this gum on two days drying is reduced by 10 to 20 % and is sold @ Rs. 20 to 30 /kg), her income may range between Rs. 8 to 12; but the uncertainty in getting the Dhatuki flower sold is not there in the case of Sahaj gum.

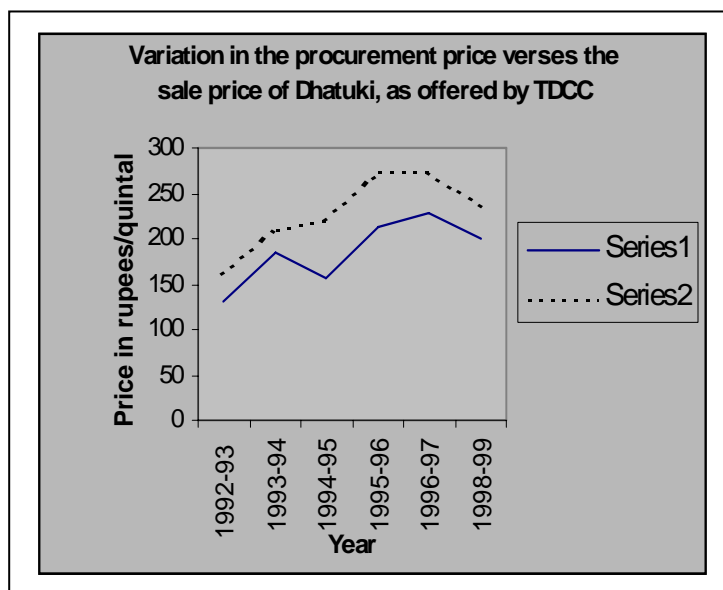
In the present situation, collection of Dhatuki flower can at best be a part-time occupation for the primary collectors because of the low rate available. In Kashipur block of Rayagada district, where the NTFPs collected included Broom grass, Shikakai, Tamarind, Mashani Chhali & Amla, collection of Dhatuki flower was introduced last year (2001) by a trader & it took him about 20 days to get a truck load (approx. 5 tonnes). The rate offered to the local agent was Rs. 6 per kg (dry) & primary collectors were supposed to be paid less than Rs. 5. Besides that, the local agents, who often happen to be the owners of local grocery shops, paid a portion of their due in kind (barter).

Acc. to Sri N.D. Pyne, the price available to the pr. collectors increased from 25 paise / kg (dry) in 1962-63 to maximum 50 paise in 1974. It is reported that the wholesale price at Raipur has come down from Rs. 20-22 per kg (dry) in 2000 to Rs. 7.50 to 8 in 2001. The business has reportedly decreased during the last 10 years & the situation does not seem favourable for promoting SHGs on the basis of Dhatuki trade.

The following table illustrates the variation in procurement price (in rupees per quintal) vis-à-vis that in the wholesale price of Dhatuki flower (dry), as per the records of TDCC (Orissa) during the last decade:

*To be revised and updated. Please contact the author in case of any confusion.*

<i>Year</i>	<i>Procurement price (Series:1)</i>	<i>Wholesale price (Series:2)</i>
1992-93	132	161
1993-94	184	210
1994-95	156	220
1995-96	213	274
1996-97	227	274
1998-99 <sup>34</sup>	200	235



The above graph shows that the procurement price varied more or less proportionately with the variation in the wholesale price. This consistency was possible probably because TDCC is a government concern.

Collection of Dhatuki flower also coincides with the collection of Mohwa and since the latter fetches more than the former, the primary collectors hardly prefer the collection of Dhatuki<sup>35</sup> if they have abundant Mohwa trees for their collection.

TRIFED estimated the production potentiality of Dhatuki flower at 1000 quintals/annum. In terms of the minimum daily wage of Rs.50/-, this would imply to an employment opportunity of 5000 man-days as against the procurement price of Rs.2.50/kg.

#### ***PATAL GARUDA***

<sup>34</sup> Wholesale price for 1997-98 was Rs.275/-, but the procurement price for this year being not available, it has been excluded from the table.

<sup>35</sup> As we found in the Kusmi haat near Kuchinda on 18-3-2002, there was a collection of some 3 quintals of Mohwa against that of approx. 3 kg of Dhatuki flower although the procuring trader was the sole procurer for Dhatuki there. It was already more than 3 hrs. since the haat started and the 3 kg collection of Dhatuki was reportedly from three persons. The ration of bartering was 1:1(salt) for Dhatuki and 1:2 for Mohwa.

*To be revised and updated. Please contact the author in case of any confusion.*

The wholesale price of this restricted item of considerable demand has fluctuated during the last 25 years as follows:

1975 – 1995 : Rs. 40 to 60 kg (dry)  
 1996 : Rs. 240  
 1997 : Rs. 120  
 1998-2000 : Rs. 90  
 2001 : Rs. 160  
 2002 : Rs. 90-100  
 (per com. Sri M.V. Ramana)

The fluctuation was mainly due to the fluctuation in the export possibility of this item<sup>36</sup>. Accordingly, the primary collectors of Kashipur block (Rayagada district), who were getting Rs. 15 per kg (raw ) in 2000, earned Rs, 25 to 35 kg after the price like in 2001. A person can collect max. 1 kg (raw) of this root per day & each family was able to earn Rs. 100 to 120 per day after the hike. But this year, the rates have been reduced again & the situation is similar to that in 2000.

<i>The TDCC experience</i>		
The fluctuation is documented by the TDCC as follows:		
Year	Procurement price (in rupees)/qtl (Series:1)	Wholesale price/qtl (Series:2)
1995-96(yr.1)	1490	1660
1996-97(yr.2)	2000	1975♣
1997-98(yr.3)	3000	3320

In Keonjhar town, poor tribal men & women often bring Patalgaruda for selling in addition to the regular items of Sal leaves & brushwood. They sell the Gr. I variety @ Rs. 50 kg & Gr. II variety @ Rs. 30 kg (semi-dried). They are unaware of the price fluctuations & usually sell their collection in small bundles @ Rs. 5 each (± 100gms). Some of them like Luki Pradhan come from a long distance & it might take them more than a day for a collection of 1 kg root (this might be the reason behind their not bringing Patal garud every day. Some of them bring it only on Sundays).

There are some potential areas where the species remains almost untouched from collection. For ex., in some parts of the core areas of Shimlipal, access for the traders have been so difficult that there are no immediate buyers in the area. On the other hand, Gahalamunda is a Juang area in Keonjhar district where *R. serpentina* is abundantly available, but the Juangas themselves are little interested in its trading. Rather they allow a non-tribal local medicine man to collect the roots in exchange of a few rupees.

The following table shows the variation in the procurement price (average) of Patalgarud per quintals, as offered by TDCC between 1985-86 and 1994-95:

Year	Procurement price in rupees/quintal

<sup>36</sup> As explained by Sri M.V.Ramana. However, it is not clear how the export possibility was created despite a ban.

*To be revised and updated. Please contact the author in case of any confusion.*

1985-86	600
1986-87	Not available
1987-88	550
1988-89	Not available
1989-90	Not available
1990-91	700
1991-92	Not available
1992-93	1058.80
1993-94	Not available
1994-95	1520

(Source: Patnaik:1996; Annexure XXIII(A))

Value addition by drying fetched the following rates for the procurers of Kashipur:

Year	Rate for the item in raw/kg	Rate for the dried roots/kg	
		Primary collectors	Middlemen/ Agent
2000	15	45	60 to 65
2001	25 to 35	70 to 80	90 to 120

(Source: Sri Vikash Jain and Sri M.V. Ramana)

According to TRIFED, the state has a production potentiality of 1000 quintals of Patal garud. However, it would be safe to assume it as 200 quintals per annum in view of the sustainable production and accordingly, the employment opportunity generated from this source would be 12000 man-days per annum in terms of the minimum daily wage of Rs.50/-, as against the procurement price of Rs.30/kg.

**ANANTAMULA**

*To be revised and updated. Please contact the author in case of any confusion.*

On our way to Rastuguda, we met some Paraja tribals who, when showed the Anantamula plant, desperately wanted an order from us despite their inexperience in the collection of this root. These people belonged to the BPL category & hence they did not want to lose any chance of an income, but they did not know that their counterparts (Kutia Kandhas) of Thuamul Rampur refused an offer of Rs. 10 to 15 per kg of collection when a local NGO *Vanavasi Seva Prakalpa* of Bhawanipatna approached them after getting an order from outside. The Kutia Kandhas wanted Rs. 25 per kg because collection of Anantamula is a laborious process. The occurrence being sporadic, one can collect maximum 500gms. to 1 kg per day in the potential areas. While a plant of *Ichnocarpus frutescens* can yield 100 to 150gms of root, *H. indicus* (Anantamula) yields approx. 10gms. root per plant. Again, the collection amount reduces almost by 50% during the summer when, unlike the rainy days, extra labour is needed for digging.

The wholesale price of Anantamula is said to be Rs. 30 to 40 per quintal (dry) in 1962 (*per com.* N.D. Pyne). The current price seems to be much higher than that (Rs. 35<sup>+</sup>/kg at Kolkata), but the primary collectors do not find much scope in this trade probably because the big traders of the state usually import the root from the south where its procurement is easier (due to cultivation?) & also, this variety (known as the Madras variety) is comparatively thicker & well-sorted<sup>37</sup>. So the big traders hardly search for a local supplier.

Small traders sometimes ask for a local collection. For ex., the *Putuli Baniyas* of Mayurbhanj pay Rs. 2 per a bunch of Anantamula root (approx. 25gms. on drying) to the primary collectors. The local tribals supply them about 10 to 20 kg of various herbs (total) of which Anantamul consists of 10 to 20 %. These tribals do the collection work on part-time basis.

Sitaram Bisi has been associated with some Ayurvedic pharmacies of western Orissa and according to him, the procuring price of Anantamul (supplied by local people) has increased in the last seven years as per the following table:

<i>Year</i>	<i>7 years ago (1994-95 ?)</i>	<i>4 years ago (1997-98 ?)</i>	<i>Current (2002)</i>
Raw	Rs. 2 to 3	Rs. 3 to 4	Rs. 10 to 12
Dry	Not available	Rs. 12	Rs. 30 to 35

Bisi says that the local pharmacies prefer to purchase Anantamul from the local people because it is cheaper and more fresh than that procured from the Raipur market. Purnachandra Pandey, a local villager who supplied Anantamul roots to the pharmacy of Sri Sri Nrusinghanath Ayurvedic College at Nrusinghanath in 2002, says that although he got Rs. 40 per kg (dry) of his supply from the college pharmacy, still it was not profitable since the average collection potential per man-day is approx. one kg (raw) which on three days drying is reduced by 60 to 75% in weight. Hence, the ideal price, according to Pandey, should be Rs. 45/kg (raw) and Rs. 100/kg (dry).

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<sup>37</sup> However, this Madras variety 'Anantamul' (?) looks different to some extent from the local collections of pure Anantamul and due to many such reasons, the former is sometimes suspected to be not genuine.

*To be revised and updated. Please contact the author in case of any confusion.*

At a production potentiality of 200 quintals/annum, the employment opportunity generated from the harvesting of Anantamul would be 12000 man-days in terms of a minimum daily wage of Rs.50/kg as against a procurement price of Rs.30/kg (dry).

## Scope for Women

As usual, women are the exclusive (more or less) primary collectors in those cases where the collection process demands comparatively less (but immediate) physical pressure on the body. This is why the males cut down trees & their lady companions take part in the debarking process only.

We can categorize all the NTFPs discussed in this report, on the basis of women's role in collection, as follows:

<i>Male- dominant</i>	<i>More or less equal participation</i>	<i>Female – dominant</i>
Medha bark	Ritha	Bhuineem
Arjun bark	Shikakai	Dhatuki*
Paluo		
Patal garud <sup>†</sup>		
Anantamul		

Women go for the collection for various reasons in different cases, for ex.,

- At Kapand (near Jashipur), women join the male Khadias (who go for the collection of Paluo rhizomes) not because their assistance is very much sought by the males, but because they just don't have anything to do or eat at home.
- Where the NTFP collection is a secondary occupation (for ex., Dhatuki), the primary occupation being a male – dominant one.
- Where males lack patience (patience is quite influenced by the lower rates of procurement as in case of Bhuineem).

All the above factors / instances indicate a secondary role of women in the overall livelihood management of the family, but practically they sometimes contribute equally or even more than their male partners so far the income of the family is concerned (even children also take a role in some cases).

There have been cases in which women did the collection & the men brought it for sale. This is what happened in case of Dhatuki in the Kashipur block of Rayagada district in 2001.

In case of *ex situ* processing (i.e. processing at a place different from that of collection, for ex., home), women often assume a greater role. This can be seen in the instance of Paluo.

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\* As per an OXFAM (an NGO) report, some 40 quintals of Dhatuki flower was collected in a particular year (not stated) exclusively by the women of Paikmal block.

<sup>†</sup> In Koraput district, ORMAS has procured this item through women SHGs in 2001.

*To be revised and updated. Please contact the author in case of any confusion.*

Among the indirect implications, the most important concern is probably the livelihood of those women who work in the Agarbatti industries. Among the total labour force, percentage of women varies from 60 to 80 in these industries as they (women) are the employees who mostly make & pack the Agarbattis. Making Agarbattis demand care as well as patience & women are thus preferred for such work.<sup>38</sup>

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<sup>38</sup> Agarbatti making has been a form of cottage industry in many places. In one such industry at Rayagada, 80% of the labour force is women. Each women employee makes 4 to 4.5 kg of Agarbatti / day on average (the amount can be maximum up to 6 kg in skilled hands) which takes her approximately 6 hours. She is paid @Rs. 10/kg of production. Some even take the raw materials to their homes, prepare the Agarbattis there, and then give the finished product to the industry owner. Since the wage is fixed on the basis of production, their working hours at the industry itself is not of much importance.

***The ultimate sufferers***

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The Times of India

May 7, 2001

**AGARBATTI INDUSTRY IN TROUBLE**

By MEGHANA MATHUR

BANGALORE: Ask any tourist what India means to him besides the Taj Mahal and the temples, he's likely to mention the smell of incense sticks or agarbattis. Even as the usage of agarbattis has spread to include aroma therapy and room freshening, the industry is facing problems.

Most agarbatti industries in Bangalore use nature based, eco-friendly raw materials. Says Hiten Shashikant Vadhar President, All India Agarbatti Manufacturers' Association based in Bangalore, "This industry needs minor forest produce items like jigat powder which comes from the bark of a tree belonging to the cinammon species. This tree can be grown in the forest areas. Sandalwood and bamboo grass are also vital."

Although jigat powder is not part of the sandalwood species, it comes under the Karnataka Government's Sandalwood Act 71(A). In no other industry is this used. Although there is plenty of bamboo available in the state, 95 per cent of the industry's requirement comes from Tripura. The authorities have forbidden the cutting and utilising of the raw material from local forests. Vadhar attributes these prohibitive measures to the government's fear of sandalwood smuggling and illegal practices. According to Vadhar, if this continues, eventually the natural agarbatti industry might completely die out or convert to syntheticised incense sticks.

Partner of Narmada Industries, Girish Katarai believes, "The industry faces grave danger if the authorities don't think of some solutions fast". Manufacturers claim, despite several symposiums and discussions, no solution has been arrived at. "If the government gives us the infrastructure to grow our own raw materials, the industry might get back on its feet," adds S G Vijay, partner Parimal Mandir.

But mistrust of the authenticity of manufacturers is prevalent in the minds of the forest authorities. "They must take up each manufacturer individually and [pg 6] research him completely before giving him any infrastructure. If incentives and rules are stringent, things will be fine," adds Vijay. The heritage product of India, agarbattis have an export figure of four thousand containers per annum. The Export Commission Council states the industry forms Rs 200 crore of total exports. "This industry is not finance intensive, even if the authorities permit us to buy our own land and grow our own raw material, we cannot afford to, since most industries here are just one man shows," adds Vadhar.

*Women power*

In Kureichuan (Kuchinda block of Sambalpur dist.), when the women folk were asked, as members of a SHG, to procure Bhuineem; they did not find the job very promising since the procuring price was incompatible with the labour invested by them. But then they decided that they would still continue the collection because this was the first opportunity for their newly established SHG to deal in a product and to strengthen the SHG, collection of Bhuineem by the members was necessary. Hence, they collected more than a quintal (dry) of the produce despite a short period of time. Now they co-operate each other not only to strengthen their SHG, but also for other socio-economic developments in their village. The price they got from the collection of Bhuineem has been utilised by them for managing things of their concern and it is learnt that, Dugi Badra, one of those women who collected the maximum amount of Bhuineem in the village, managed to pay the school/hostel fee of her son from this source.

## **The Impact of Free Trade**

The handing over of more than 60 MFP items to the Panchayats was supposed to be step in the direction of strengthening the village level civic bodies (Panchayats). Besides that, it was also expected to benefit the primary collectors.

However, both these objectives have been hardly fulfilled. And the reasons of this apparent failure are many, for instance:

- ◆ The Panchayats lack necessary infrastructure as well as experience to handle such matters (MFP trade).
- ◆ Many of these items (for ex., Anantamul) are already of insignificant potentiality and/or market demand and as such these are practically meaningless as resources under the hold of Panchayats.
- ◆ Taking monopoly leases for a large area (Forest Division) was not only convenient for the lease holders, but it also kept the number of wholesalers in balance which was quite effective in ensuring an end market for the product at profit. However, in the new system the big traders hardly come forward to take leases from the Panchayats since it seems to be quite inconvenient for them to take apply for leases to a number of Panchayats. As a result, some of them have even discontinued the trade of some particular items (for ex., Dhatuki) and this has, in the long run, a negative impact on the primary collectors because the small traders cannot keep large stocks and also, they often face problems in dealing with the outside traders. Again, in a unfavourable market situation, the crisis becomes much more critical when there are large number of small traders/suppliers against a few purchasers. Increase in the number of suppliers means a decrease in the rate offered by the wholesalers which ultimately affects the primary collectors in the next season.
- ◆ It was expected that the new policy would create competition among the traders and this would benefit the primary collectors since they (pr. collectors) would now be able to get a better price. However, this has hardly happened anywhere since the traders can't offer a rate inconsistent with the wholesale price and secondly, their number has rarely increased .If the monopoly-holders did not purchase at a fair price, then the small traders are in no way better than them.
- ◆ As we have seen earlier, the increment in the procurement price offered by TDCC was more or less proportional to that in the sale price in many cases (e.g, Ritha & Dhatuki<sup>39</sup>) whereas private parties hardly bothered to follow this principle (see, for ex., the case of Arjun bark). TDCC being a govt concern is expected to offer minimum procurement price fixed by the govt, but it now prefers rather to avoid purchasing those items which the private parties/traders have procured at a price much lower than that since these parties would be able to sell their produce at a rate lower than that of TDCC (which is supposed to procure at a rate not lower than the minimum procurement price and as such, would like to sell at a price higher than that) and then TDCC would not be able to trade its material. This way the benefit

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<sup>39</sup> It is another thing that the benefit, which was actually meant for the pr. collectors, went to the agents in many cases.

*To be revised and updated. Please contact the author in case of any confusion.*

which the primary collectors were getting from a govt concern would now be hardly available.

- ◆ Previously TDCC had monopoly over certain minor forest produce and one of the implications of this monopoly system was that people were, in principle, not able to sell their produce if TDCC refused to take them. This was supposed to put a check on the rate of exploitation of that particular produce. However, after the monopoly was cancelled, people found scope for selling their produce in a much larger scale than before which also indicates a higher rate of exploitation of forest produce. For ex., previously the production of Hill broom in the Kashipur block was approx. 500 quintals, but after the monopoly was abolished, it has now rose upto 1500 quintals (2000-2001). This might not exert any pressure on this natural resource since cutting the Hill broom grass facilitates its regeneration and thus acts like a silvicultural practice<sup>40</sup>, but there are many other items (e.g., Amla) which are liable to suffer the impact of overexploitation .

Many of these factors have caused an apparent failure of the new system in ensuring better scope for the primary collectors, but that doesn't mean that it is, in principle, anti-people. Rather, lack of necessary infrastructure as well as some lacuna in the policy framework seem to be the real factors behind this failure and as such, these need to be rectified.

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<sup>40</sup> The production in the Kashipur block this year is also reportedly of the same amount (more or less) as in 2001.

## **Potential for Micro-enterprise Promotion**

Our study indicates that some of the NTFPs can not work as ‘core items’ for trading activities to be taken up by the SHGs because either their potentiality is negligible or the market is not very favourable. There are even cases in which the end market was/is favourable, but the middle-men do not procure at the reasonable price from the primary collectors (who had no other option but to sell their produce to these people only) and it is due to their exploitation that the market appears unfavourable. In all such cases, the products can only work as secondary items for the SHGs.

In the following table, the priority ranking of select NTFPs is given in accordance with their potential in promoting the SHGs:

<i>Name of the item</i>	<i>Classification on the basis of trade potential</i>	<i>Rank</i>	<i>Remarks</i>
Glutinous bark	Core item	1	Sustainability is to be ensured
Arjun bark	Secondary item	3	Marketing scope not high
Aswagandha	<u>Core item</u>	1	If cultivated
Bhuineem	Secondary item	3	Marketing scope not high
Ritha	Secondary item	3	Marketing scope not high
Shikakai	Secondary item	2	Marketing scope comparatively higher than that of Rank-3 items
Paluo	Core item	1	In the form of starch powder
Dhatuki	Secondary item	3	Marketing scope not high
Patalgarud	Core item	1	Sustainability is to be ensured
Anantamul	Secondary item	3	Commercial viability is difficult to ensure

*To be revised and updated. Please contact the author in case of any confusion.*

#### *ABBREVIATIONS/GLOSSARY*

BPL: Below poverty line

Chhali:bark

Haat: Weekly market

HH: House-hold

Jhuna: Sal resin

Juanga: A tribe

Kabiraj/Kaviraj: Herbal practitioner

NGO: Non-government organisation

OFDC:Orissa Forest Development Corporation( a govt concern)

ORMAS: Orissa Rural Development and Marketing Society(a govt concern)

Per com.: personal communication

Putuli Bania: A community traditionally involved in the trade of herbs

SHG:Self-help group

TDCC:Tribal Development Co-operative Corporation(a govt concern)

TRIFED:Tribal Co-operative Marketing Development Federation of India(a govt concern)

Vaidya: Traditional physician

*To be revised and updated. Please contact the author in case of any confusion.*

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## ANNEXURES

To be revised and updated. Please contact the author in case of any confusion.

Annexure-1

Minimum 'Fair Price'<sup>41</sup> as fixed by the Government of Orissa

Name of the item	Price in rupees/kg					
	1990-91	1992-93	1998-1999	2000-2001	2001-2002	
					Rayagada	Kalahandi
Glutinous bark	—	—	—	—	—	—
Arjun bark	—	—	—	—	—	—
Aswagandha	—	—	—	—	—	—
Bhuineem	Not available	Not available	3	3.25	3.50	4
Ritha	Not available	Not available	8	8.50	9	9
Shikakai	5	5	15	15	16	15
Paluo	35	35	55	Gr.I: 60 Gr.II:55	Gr.I: 65 Gr.II:60	Gr.I:60 Gr.II:50
Dhatuki	Not available	Not available	5	5.50	6	5
Patalgarud	7	7	40	40	45	Not available
Anantamul	Not available	Not available	4	4	Not available	6

Note: Prices for glutinous bark, Arjun bark and Aswagandha are not fixed by the Price Fixation Committee. This committee used to be of the state level for many years, but since 2001-2002, prices are being fixed by the District Level Price Fixation Committees of different districts of which Kalahandi and Rayagada have been quoted here as instances.

Source:

1. Pattnaik N., Minor Forest Produce in Orissa
2. RCDC, *Jungle Khabar*, Nov. 2000
3. Proceedings of the meeting of the district level price fixation committee held on 18-10-2001 and 20-10-2001 in the office of the Collectors of Kalahandi and Rayagada respectively.

<sup>41</sup> Rather known as procurement price as calling it 'fair' has not been justified.

*To be revised and updated. Please contact the author in case of any confusion.*

Annexure-2

Procurement Price at Kolkata as on 3-01-2002  
(by courtesy: M/S. Annapurna Bhandar, Hookapatti, Kolkata)

<i>Name of the item</i>	<i>Price in rupees/kg</i>
Medha chhali	20
Arjun chhali	4 (Orissa variety) 5 to 5.50 (MP variety)
Aswagandha	35 (Orissa variety)
Bhuineem	9
Ritha	18 (Punjab variety)
Shikakai	22
Paluo	—
Dhatuki	11
Patalgarud	90
Anantamul	35

Note: As supply was more than the requirement, rates for glutinous bark etc. were decreased. For ex, rate for the best variety Aswagandha root was reduced from Rs. 90/- per kg to Rs. 55/- (MP variety). Paluo is not traded by this concern.

Annexure-3

Wholesale prices at Cuttack as on 2 – 2 – 2002  
(by courtesy: M/S. Jagannath Bhandar, Nandi Sahi, Cuttack:

<i>Name of the item</i>	<i>Price in rupees/kg</i>
Medha chhali	—
Arjun chhali	13 to 14
Aswagandha	100 (best)
Bhuineem	14
Ritha	30(Punjab) 6 to 7(Orissa)
Shikakai	30
Paluo	—
Dhatuki	20
Patalgarud	<sup>42</sup> —
Anantamul	50 (Madras)

<sup>42</sup> In another trading agency (M/S. Narayan Banoushadhi Bhandar) of Cuttack , the rate was Rs 160/- and Rs. 120/kg respectively for the Gr. I and Gr.II varieties of Patalgarud in August 2001. The same agency charged Rs. 15 to Rs. 18 for the *desi* (Orissa variety) Ritha and Rs. 40 to 42 for the Ritha coming from outside. However, Anantamul coming from both local as well as outside sources was charged equally , i.e., Rs. 60 to 65 per kg . It may be noted here that all these prices were meant for sale on retail.

*To be revised and updated. Please contact the author in case of any confusion.*

Annexure-4

Comparative statement of employment opportunity generated by some NWFPs in Orissa

Commodity	Output potentiality(in MTs)	Value in lakh rupees	Number of man-days generated (in lakhs)
Kendu leaves	50000	20000	500
Arrowroot	5500	3300	82.5
Sal seeds	80000	2908	72.70
Mahua flower	50000	2500	62.5
Tamarind	30000	1800	45
Mahua seed	20000	1400	35
Char seed	2500	250	6.25
Sal leaves(in the form of plates of 80 pieces in an unit)	1000000 units	45	1.13
Anantamula	Not available	NA	NA
Myrobalans	23500	1075	26.88
Siali leaves	15000	900	22.5
Sikakai	200	30	0.75
Soap nut	100	8.5	0.21
Dhatuki flower	100	5.50	0.14
Roots of Patal garud	100	4	0.10
Bhuineem	100	3.25	0.08

Note: The above table is based on the document circulated by TRIFED at the State Level Seminar on New NTFP Policy held at Bhubaneswar on 23<sup>rd</sup> June, 2000. The criterion of this estimation (of man-days) is the minimum daily wage of Rs.40/- fixed before 2001, since taking the collection potential per man-day does not necessarily ensure the minimum income which the primary collectors deserve for their hard work. The estimation will change if the current rate of minimum daily wage(Rs.50/-) is substituted for that in 2000.

Annexure-5

Kashipur : Many Contradictions

The Kashipur block of Rayagada district has been on news headlines during the last two/ three years for a number of reasons one of which was cases of starvation deaths. This block has about 60% tribal population & it is mostly these tribals who are the primary collectors / processors of NTFPs there and usually cases of starvation deaths have also been reported in the tribal villages.

Till a few years ago, Kashipur region was densely forested. In the recent past, although some of the areas like Kashipur proper has been widely deforested, the block still remains a potential area of NTFPs. Why then the tribal people starve there?

According to some forest contractors of Rayagada (who had years of experience in working in the Kashipur region), reports of starvation deaths have been exaggerated in the first place and secondly, even if it was true in some cases, then the tribal habits were responsible for that.

For example, Mr. M.V.Ramana estimates that the block (i.e. its primary collectors mostly) received a lot in cash from the sale of NTFPs and fruits last year(2001). For instance (the figures are approximate):

Tamarind	:	Rs. 6 to 7 lakhs to 1 crores
Patalgaruda	:	Rs. 15 lakhs
Hill brooms	:	Rs. 22.5 lakhs <sup>43</sup>
Dried mango pulp	:	Rs. 60 to 70 lakhs <sup>44</sup>

Even if we do not count other sources of income, still the above amount means a lot for the primary collectors of BPL category. Then, why are these people prone to starvation deaths (as highlighted in the media) ? Is it primarily because of their own unhygienic habits & other defects? The forest contractors think so on the basis of their own experiences.

And we also found examples in support of that. At Mandibissi, we came to know that many people who traditionally collected local Arrowroot rhizomes from the forest and sold the processed powder of Paluo @ Rs. 70 or 80 per kg, have almost abandoned the practice since last 5 or 6years on the ground that getting the rhizomes from forest was becoming increasingly difficult. In other words, it was their own unsustainable practice that ultimately depleted the resource, but what is important is that they did not try to adopt a sustainable method and cultivation of Paluo (which is quite easier). They seem to have this attitude that if Paluo is not there as a source of income, then there are other items; so why bother?

The above instances only suggest that one(and not all) of factors behind the miserable condition of the Kashipur people might be their own negligence or ignorance. It is also possible that a significant portion of the income of the block is misappropriated by the middle-men or agents.

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<sup>43</sup> About 1500 quintals (dry) were collected @ Rs 1500/quintal, in 2001-2002.

<sup>44</sup> The rate varied between Rs. 22 to 28 per kg.

*To be revised and updated. Please contact the author in case of any confusion.*

In 1996-97, the per-capita production of Paddy in the Kashipur block was 1.70 quintals which was 17% extra than the district average(1.45 quintals<sup>45</sup>) of the same year. Hence, the agricultural as well as NTFP potentiality of the block do not appear negligible. Critics argue that lack of enabling mechanism has made the local poor suffer from the misery like starvation deaths despite considerable production potentiality.

#### Annexure-6 High scope MFPs

The primary collectors of Paikmal area (Bargarh district) did not know till recently that the rhizomes of a plant available in the local hill forests would be so valuable. The plant (and its rhizome) is known as Safed musli<sup>46</sup> and the wholesale price of the dried rhizomes at Raipur vary between Rs. 500 to Rs. 800 per kg.

Maximum collection potential per man-day of the rhizomes (raw) is one kg. Drying takes approx. 8 days in winter (when it was collected) along with an weight loss of upto 40%. The collectors of Safed musli in the Paikmal area are said to have received Rs. 150 to 300 per kg during 2001-2002, from the local consumers; and this has now become one of the most promising MFPs for them.

Another highly valued item is Akarkara (*Anacyclus pyrethrum*) the roots of which are said to be priced in thousands. However, it has been seen from the past experiences that many of the highly valued items are suddenly devalued either due to an decrease in the market demand or excessive supply and the primary collectors/stockiest as well as the cultivators face problems because of this sudden downfall. The cultivators of *Safed musli* in Rajasthan are also said to have similar experiences in 2001.

In Orissa, an example is provided by the downfall in the Bai-berin (Bai-bidang or seeds of *Embelia ribes*) trade. For many years, the seeds were collected by outside parties from the Koraput region and the item appeared quite promising for the primary collectors as well as the middlemen. However, the price has come down from Rs. 150/kg (1997) to Rs. 30/kg in February-March 2002. Similar thing has also happened to the trade of Pippala in Koraput where the cultivation of this item is being done in many areas.

Hence, SHGs or micro-enterprises should be careful in such matters so that they would not collapse after a sudden downfall of once highly valued items. Sustainability is also another aspect of concern.

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<sup>45</sup> Based on the 1991 census. For original figures of production and population, vide the District Statistical Handbook(Rayagada district):1996-97.

<sup>46</sup> Most probably *Chlorophytum arundinaceum/tuberosum*.

*To be revised and updated. Please contact the author in case of any confusion.*

## ACKNOWLEDGEMENT

- ◆ Ama Sangathan, Mandibissi
- ◆ Botanical Survey of India, Howrah
- ◆ Central Tuber Crops Research Institute(CTCRI), Bhubaneswar
- ◆ Chetana Shramik Sangha, Paikmal
- ◆ DFO, Khariar
- ◆ Dr. Aurobindo Majumdar, Mahalaxmipur, Khuntuni
- ◆ Dr. Bhawani Chowdhury, Bhubaneswar
- ◆ Dr. H.S. Pandey, Howrah
- ◆ Dr. Manju Ahal, Palampur (HP)
- ◆ Gopabandhu Ayurveda Mahavidyalaya, Puri
- ◆ Kaviraj Banamali Das, Cuttack
- ◆ Kaviraj Maguni Das, Cuttack
- ◆ M/S. Annapurna Bhandar, Kolkata
- ◆ M/S. Bhawani Agencies, Rayagada
- ◆ M/S. Grihasti Udyog, Rourkela
- ◆ M/S. Jagannath Bhandar, Cuttack
- ◆ M/S. Narayan Banoushadhi Bhandar, Cuttack
- ◆ Medicinal Garden, Patrapada, Bhubaneswar
- ◆ Mr. M. Nedun, CTCRI
- ◆ Mr. Mahiuddin, Karanjia
- ◆ Mr. Rary Anto, ORMAS, Koraput
- ◆ Mrs. Chhinei Bariha, Chetegan
- ◆ Mrs. Jema Nayak, Sandeuli
- ◆ Mrs. Luki Pradhan, Banspal
- ◆ Mrs. Pan Hansda, Badsol
- ◆ Mrs. Premlata Paliwal, Udaipur (Rajasthan)
- ◆ Mrs. Ratani Mahato, Budhikhamari
- ◆ Ms. Bharati Mohanto, Sanmundaloi
- ◆ Ms. Jabamoni Tudu, Thakurmunda
- ◆ Office of the PCCF, Bhubaneswar
- ◆ OFDC, Bhubaneswar
- ◆ ROPE, Kuchinda
- ◆ Sr Abhi Mahakud and Amar Singh Dhurua, Nrusinghanath
- ◆ Sri Ajay Behera, Thakurmunda
- ◆ Sri Ajay Mahanta, Lahunipada
- ◆ Sri Ajay Nayak, Mituani
- ◆ Sri Amulya Kumar Sahu, Tadki
- ◆ Sri Arakshita Sahu, Kailash Samantray, Baridhar Pradhan & Kuber Pradhan, Ranpur
- ◆ Sri Arat Pradhan & Bipra Pradhan, Chakundajhar
- ◆ Sri Ashis Samal, Ghanashyam Khadiratna & Niranjana Nayak, Bonai
- ◆ Sri B. Jagannath Rao, Narayanpatna

*To be revised and updated. Please contact the author in case of any confusion.*

- ◆ Sri B.S. Satpathy, CTCRI
- ◆ Sri B.N. Das, Director, ORMAS, Bhubaneswar
- ◆ Sri Babulal, Mituani
- ◆ Sri Basant Barik, Dhenkikote
- ◆ Sri Biswanath Hota, Bhawanipatna
- ◆ Sri Chandramani Das, Bishipur
- ◆ Sri Dataram Chowdhuri, Bileimunda
- ◆ Sri Deepika Prasad, Satenapalli (AP)
- ◆ Sri Dhaneswar Dehuri & Budhu Dehuri, Kapand
- ◆ Sri Dinesh Ku. Agrawal, Bargarh
- ◆ Sri Dukhishyam Behera, Barapalli
- ◆ Sri G.B. Nayak and A. Mandal, Karanjia
- ◆ Sri Ganesh Agrawal, Kuchinda
- ◆ Sri Ghana Mohanto, Mituani
- ◆ Sri Ghuntu Pradhan, Nandamunda, Bamra
- ◆ Sri Giridhari Parida, Suakathi
- ◆ Sri Gorachand Mahato, Budhikhamari
- ◆ Sri Govind Agrawal, Bagdihi
- ◆ Sri H.P.Rao, Rayagada
- ◆ Sri H.S. Chowdhuri, Bisra
- ◆ Sri Harsh Pande, IIFM, Bhopal
- ◆ Sri Hemanand Malakar, Karlapali (MP)
- ◆ Sri Hemant Tripathy, Thakurmunda
- ◆ Sri Hrushikesh Pradhan, Chetana Shramik Sangha, Paikmal
- ◆ Sri Jadumoni Nayak, Karanjia
- ◆ Sri Jagannath Swami, Rayagada
- ◆ Sri Jalandhar Tad, Kailash Tad, Banamali Tad and Mrs. Sujata Tad, Jagannathpur
- ◆ Sri K.C. Singh, DFO office, Khariar
- ◆ Sri L.N. Mishra, Basidhar Dhangdamajhi & Dwadashi Bag, Mandibissi
- ◆ Sri Laxmi Upadhyay, K.C. Panda, Jatin Panda, N.C. Panda, Damodar Upadhyay & Parsuram Sahu, Ambulkuda
- ◆ Sri M.V. Ramana, Rayagada
- ◆ Sri Manas Mohapatra and family, Khunta
- ◆ Sri Mathuri Dehuri, Rasamtola
- ◆ Sri Matias Dungdung, Churichaka
- ◆ Sri N.D.Pyne, Talbani, Baripada
- ◆ Sri Narendra Bag, Kutra
- ◆ Sri Nathumal, Bagdihi
- ◆ Sri Navakishore Dalai, Sankhabhanga
- ◆ Sri Nilam Dora, Amlapetta
- ◆ Sri Omkar Ram & Naveen Kumar, Jashipur
- ◆ Sri P.C. Mohanto, Poipani
- ◆ Sri P.C.H. Patro, Rayagada
- ◆ Sri Pitabas Patel, Sanit Ram Bariha and Dhaneswar Bariha, Chetenga

*To be revised and updated. Please contact the author in case of any confusion.*

- ◆ Sri Popu Agrawal, Kuchinda
- ◆ Sri Pradeep Ku. Swain, Akhupadar
- ◆ Sri Pradeep Kumar Prusti, Karanjia
- ◆ Sri Pradeep Mohakud & Vijay Bag, Kuchinda
- ◆ Sri Prakash Pradhan, VANANEE, Bhawanipatna
- ◆ Sri Purnachandra Pandey, Hiralal Pandey and Ekadashia Sahu, Mundhela
- ◆ Sri Purna Halua, Sankarada Toyaput
- ◆ Sri R.C. Das, Baripada
- ◆ Sri R.K.Sahu, Nizampur
- ◆ Sri Rabindra Kumar Mishra, Bhubaneswar
- ◆ Sri Ramachandra Majhi, Dekhana Majhi & Kumti Majhi, Rastuguda
- ◆ Sri Satyaban Khamari, Karlajori
- ◆ Sri S. Kondal Rao and Keshav Rao, Komtlapetta
- ◆ Sri S. N. Mishra, Devraj Mishra, Vighnaraj Mishra and Jagabandhu Goud, Mandibissi
- ◆ Sri S.C. Sahu, Mituani
- ◆ Sri S.K.Das, Sabuja Viplav, Bolangir
- ◆ Sri S.K.Sahu, Bhubaneswar
- ◆ Sri S.N. Sethi, Rayagada
- ◆ Sri Saban Joje, Barsuan Gogaitoli
- ◆ Sri Sanatan Jena, Aska
- ◆ Sri Satyabadi Sahu, Rayagada
- ◆ Sri Satyaban Khamari, Karlajodi
- ◆ Sri Satyabrata Sahu, State Botanical Garden, Nandankanan
- ◆ Sri Sawarmal Gadodia, Rajgangpur
- ◆ Sri Shailesh Gupta, IIFM, Bhopal
- ◆ Sri Sitaram Bisi, SSN Ayurvedic College, Nrushinghanath
- ◆ Sri Sukumar Bhol, Tato
- ◆ Sri Sunaram Lohari, Baneswar Dehuri, Telenga Hasa & Bail Murmu, Baniabasa
- ◆ Sri Sushil Ku. Sahiyan, Karadapal
- ◆ Sri Trinath Swain, Jeypore
- ◆ Sri Udaynath Mohanty, Dhenkanal
- ◆ Sri Vidyadhar Sundarray & Basudev Routray, Khandiabandh Sahi, Nakithana
- ◆ Sri Vikash Jain, Rayagada
- ◆ Sri Vinay Jha, Rajgangpur
- ◆ Sri Vishnu Nayak, Dhenkikote
- ◆ State library, Bhubaneswar
- ◆ STEP, Khunta
- ◆ TDCC (Marketing section), Bhubaneswar
- ◆ TRIFED, Bhubaneswar
- ◆ Vaidya Banamber Das, Barapalli
- ◆ Vaidya Gajendra Narayan Mohanto, Karanjia
- ◆ VANANEE, Bhawanipatna
- ◆ YOUTH, Kutra