

Livelihood Implication of Kendu Leaf and Sal Seed for Tribes in Odisha



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Abstract

The objectives of the paper are to analyze the determinants of kendu leaf and sal seed collection by tribes in Mayurbhanj District of Odisha and to highlight existing NTFP Policy and suggest measures to improve the tribal livelihood through collection of kendu leaf and sal seed. Kendu leaf and Sal seed are both nationalised NTFP in India. But Sal Seed was denationalized in March 2006. The study is based on primary data collected from 300 tribal people collecting kendu leaf and sal seed in 10 villages in Kuliana and Shamakhunta Block of Mayurbhanj District of Odisha and descriptive statistics, regression and t-test are used in the study for data analysis. Odisha is the third largest producer of Kendu leaf next to Madhya Pradesh and Chhattisgarh in India. The middle aged people are found more engaged in collection of kendu leaf and sal seed. It is found that the income per day from kendu leaf is Rs.156. 49 only. Since the price of kendu leaf per Kerry is fixed by Government as Rs. 1.00, the poor tribes are getting very low income from Kenduleaf which is even less than the minimum wage fixed by Government. So, the tribes are frequently demanding increase of procurement price of kendu leaf so that they will be encouraged more to collect kendu leaf which will improve not only tribal livelihood but also Government royalty. The gender, education, hours of collection and distance is the important determinants of quantity of kendu leaf collection by tribal households. It is observed that the age of seed collector, hours of collection and distance have positive impact on quantity of sal seed collection by tribal households but gender and education have negative impact of sal seed collection. If the tribes will spend more hours in sal seed collection, the quantity collection and tribal livelihood can be improved. Since the Government has no control over the sal seed, the tribes are not getting remunerative price. So, it is necessary that Government should fix the procurement price of sal seed for tribal welfare.

Keywords: Collection, Kendu Leaf, Price, Sal Seed, Tribes.

Introduction

Non-timber forest products (NTFPs) play a crucial role in development and livelihood of tribal people across the world. In earth more than two billion people are dwelling in the forest, depending on NTFPs for subsistence income and livelihood. NTFPs are considered to be important for sustaining rural livelihoods, reducing rural poverty, biodiversity conservation and improving rural economic growth. The NTFPs are the products of forest which include valuable food, fodder, fiber, medicinal plants, bamboos and canes, tannins and dyes, oils, gums, resins and leaves and many products of animal origin. In India, 50 million people are dependent on NTFPs for their subsistence and cash income. In the upgradation of rural economics, the role and contribution of NTFPs are crucial because of their richness in biodiversity as source of food, fodder, fiber, fertilizers, herbal products, construction materials, cosmetics and cultural products of perfumes, medicines, paints etc.

Forest is an inseparable part of the tribal people. They are almost completely dependent on forest for food, shelter, medicine and clothing. They collect NTFPs like roots, tubers, flowers, fruits, fibers, gums, resins, dyes, tannins, honey and wax etc. to fulfill their day to day requirements. Forests have played a vital role in the socioeconomic and cultural life of the tribal people. Scheduled Tribes (STs), have their own cultural norms, social systems and institutions. In terms of economic pursuits, they are very much dependent on nature, especially forests and forest produce, to eke out their livelihoods. The life and economy of the tribal people are intimately connected with the forests as majority of the tribal population actually lives near the forests and make a living out of the forest produce collected by

them; mainly non wood forest products called as Non Timber Forest Products (NTFP's). These include bamboo, canes, fodder, leaves, gums, waxes, dyes, resins and many forms of food including nuts, wild fruits, honey, etc. The NTFP provide both subsistence and cash income for people who live in or near forests. Some MFPs, especially bamboo and kendu leaf, have significant commercial importance. The dependence on NTFPs is greatest among the poor tribals for whom these products often serve the safety net function during periods of stress.

Odisha is a major producer of NTFP. Approximately 22.21% of the states population are tribals and they depend heavily on NTFP. 12% to 15% of annual incomes of tribes come from NTFPs in Odisha. The access of tribes to NTFPs and its markets is severely restricted and governed by the State Policies. The NTFPs in Odisha were initially leased out to private traders and industries through long-term agreements. As this arrangement proved unsatisfactory, the state government decided to take over the NTFP trade. It first nationalised tendu leaves in 1973. Subsequently, in 1981 it established state monopoly over several other NTFPs as well. This policy continued until the end of 1990s when the state government decided to end its monopoly and was handed over to the panchayats in March 2000. The NTFP trade is controlled by Orissa NTFP (Trade Control) Act 1981 that empowers the Govt. to declare NTFP at different time as nationalized item selectively with complete monopoly. All nationalized NTFPs were given long term lease to Govt. Agencies like (Kendu Leaf Dept. for KL, TDCC for Sal seed & OFDC for Bamboo & Sal Seed) for procurement and marketing. March 2000 NTFP Policy that transferred 67 items (now 69) terming them as MFP, to the purview of Panchayat ownership as per Panchayat (Extension to Scheduled Areas) Act, 1996. The basic problem is that the income of tribes from NTFP is declining over time due to deforestation, diversification of occupation, lack of adequate and favourable pricing policy, inadequate marketing, exploitation of primary collectors by private agents and middleman.

Review of Literature

Dash Bibhuti Bhusan (2016) in a study in Keonjhar district of Odisha (India) observed that the scheduled tribe populations of the district are mainly depend upon forest resources for their livelihood. During lean season other rural people of the district also depend on forests for subsistence fuel wood, fodder and NTFPs as food security. The study shows that the real collectors and producers are not getting the actual value of their products and labour. Major portion of the benefit goes to the pocket of intermediaries and other traders. Primary gatherers have poor access to credit. They have been depending on village traders or local sahookars. As a result they are bound to sell their products at very low prices as soon as they collect NTFPs.

Das Sanjukta (2016) made a study from three forest villages (near Simlipal National Park), of Mayurbhanj, Odisha where people of villages from the

core area of Simlipal Tiger Reserve, are rehabilitated. The study finds high forest dependency of the people NTFP are important sources of livelihood opportunities to the tribes. It is also help the households' food security. There is evidence of unsustainability of forest resources by the collection of forest products by the local people.

Shit Pravat Kumar and Pati Chandan Kumar (2012) conducted a study on Non-Timber Forest Products for Livelihood Security of Tribal Communities: A Case Study in Paschim Medinipur District, West Bengal. This study with geobotanical approach has been conducted in the district to collect data on non-timber forest products (NTFPs) to include information on what is collected, who collects it, quantities and uses. In study area the only crop is a single paddy harvest, thus products from the forest play a significant role in the livelihood of local people, particularly the tribal communities. This study looks at local use of non-timber forest products gathered from these degraded forest areas.

A study on impact of NTFPs on rural tribe's economy in Gondia district of Maharashtra was conducted by Maske Mahesh, Mungole Arvind, Kamble Rahul, Chaturvedi Alka and Chaturvedi Arun (2011). Livelihood systems in this districts are complex, primarily dependent on agriculture (including allied activities-livestock, poultry, fishery, etc.) forest, agricultural labour and village artisans. It is more important that the problems of the people of disadvantaged regions like rainfed, hilly and tribal areas be addressed through imparting new skills to the poor and building up durable income generating assets and capacity to adapt to rapidly changing markets. Study suggested alternate sources of income to the villagers to improve their socio-economic conditions as well as increasing the income level and employment opportunities by effective collection and marketing of non-timber forest product and the same time making villagers come forward for forest protection.

Rout S.D., Panda S.K., Mishra N. and Panda T. (2010) in a paper on "Role of Tribals in Collection of Commercial Non-Timber Forest Products in Mayurbhanj District, Orissa" highlighted that Non-timber forest products available inside forest area are very useful to the local population for meeting their subsistence consumption need while other is of commercial importance. The ethno botanical resources not only provide the three basic needs of life, i.e. food, shelter and clothing but also strengthen the economic status of the forest dwellers. Investigations have been made on medicinal values of higher plants but the role of Non-timber forest products (NTFPs) on the livelihood of tribals in Mayurbhanj district of Orissa are unfortunately ignored.

Objectives of the Study

The study in the paper has two objectives.

1. To analyse the determinants of kendu leaf and sal seed collection by tribes in Mayurbhanj District of Odisha

2. To highlight existing NTFP Policy and suggest measures to improve the tribal livelihood through collection of kendu leaf and sal seed in Mayurbhanj District of Odisha

Data Source and Methodology

The study is based on primary data collected from 300 tribal people collecting kendu leaf and sal seed in 10 villages in Kuliana and Shamakhunta Block of Mayurbhanj District of Odisha which has 56 per cent tribal population and a forest cover of 439 thousand hectare constitutes 42.13 % of the total geographical area of the district. Data are collected through printed questionnaires through personal interview method. Kendu leaf data are collected from 150 households and sal seed data are also collected from 150 households. After classification and tabulation, the field data are analysed using summary statistics, regression and t test. The Kendu Leaf is collected by tribes and 24 leaves are packed into a Kerry whose price is Rs 1.00 fixed by the Government of Odisha. They are purchased by the Government through the Munsis but sal seed are sold to private

agents after collection by tribes in kilograms. The forest produce provides livelihood and employment to many households particularly to tribes. Kendu leaf and sal seed are two most important and commercially viable NTFP in Odisha. Hence, the study is undertaken on these two NTFPs only. They are mostly collected during summer season in April and May.

Kendu Leaf and Livelihood of Tribes

Among different commercial NTFPs, Kendu leaf is the most precious and commercially viable forest resources which are collected from young kendu trees. Kendu Leaf is called green gold of Odisha and most important non-wood forest products of Odisha. Commercial use of kendu leaf has been as the wrapping material for bidi, the cigar of poor people. The annual production of Bidi Leaf in Odisha is around 4.5 to 5 lakhs quintal, which is about 20% of the country's annual production. Kendu leaf was nationalized in 1973 and Odisha Forest Development Corporation has monopoly rights and pays royalty to the government

Table-1 Summary Statistics of Kendu Leaf

Statistical Measures	Age	Gender (M/F)	Edu	HHSIZE	Quantity	Qty (Daily)	Hours	Distance	Income per head
Mean	37.81	1.86	3.77	4.48	9387.56	337.08	4.90	2.80	9387.56
S.D	9.90	0.35	3.64	1.63	3790.28	178.02	1.10	2.10	3790.28
Kurtosis	1.18	2.43	-1.04	1.33	0.43	1.92	1.03	-1.51	0.43
Skewness	0.94	-2.10	0.51	0.59	0.75	1.37	0.23	0.38	0.75
Minimum	18.00	1.00	0.00	1.00	2850.00	100.00	2.00	0.50	2850.00
Maximum	70.00	2.00	12.00	11.00	22400.0	950.00	9.00	6.00	22400.00
N	150.0	150.00	150.0	150.00	150.00	150.00	150.0	150.00	150.00

Source – Computed by Author by using EXCEL Data Analysis

It is observed that the average age of kendu leaf pluckers is 37.81 years which implies that the middle aged tribal people are collecting kendu leaf in Mayurbhanj district of Odisha. Since young tribal workers are migrating more to nearest towns to get better income opportunities, the middle aged people are found more engaged in collection of kendu leaf. Out of 150 sample pluckers of kendu leaf, 21 are male pluckers and 129 are female pluckers which show that 86 per cent are female kendu leaf collectors. The average year of schooling is 3.77 which imply that the education of kendu leaf pluckers is very low. In a year, the per head quantity

is 9387.56 kerry and income is Rs.9387.56. It is found that the income per day from kendu leaf is Rs.156. 49 only. Since the price of kendu leaf per Kerry is fixed by Government as Rs. 1.00, the poor tribes are getting very low income from kendu leaf which is even less than the minimum wage fixed by Government. So, the tribes are frequently demanding increase of procurement price of kendu leaf so that they will be encouraged more to collect kendu leaf which will improve not only tribal livelihood but also Government royalty. There is also more variation in quantity of kendu leaf collected by the tribes as the standard deviation is 3790.28.

Table-2 Regression Results (Quantity of Kendu Leaf as Dependent Variable)

Regression Statistics				
Multiple R	0.38			
R Square	0.14			
Adjusted R Square	0.10			
Standard Error	3585.97			
Observations	150.00			
	Coefficients	S.E	t Stat	P-value
Intercept	2647.57	2521.23	1.05	0.30
AGE(PL)	-11.74	31.50	-0.37	0.71
Plu(M/F)	1486.62	868.18	1.71	0.09
Edu(PL)	230.51	84.73	2.72	0.01
HHSIZE	-111.13	185.97	-0.60	0.55
Hours	786.86	269.17	2.92	0.00
Distance	69.56	144.89	0.48	0.63

Source- Computed by Author by using EXCEL Data Analysis (* means significant at 1%)

Regression results show that the gender, education, hours of collection and distance have positive impact on quantity of kendu leaf collection by tribal households. Education of kendu leaf collectors and hours of collection are significant variables at 1% level in influencing of quantity of kendu leaf collection

as their p-values are significant. The regression coefficient of age of plucker is - 11.74 which implies that as age increases, the quantity of kendu leaf collection decreases and vice versa. So, young tribal people may be motivated more in collection of kendu leaf.

Table-3 t-Test: Two-Sample Assuming Unequal Variances

	Quantity of Kendu Leaf (April)	Quantity of Kendu Leaf (May)
Mean	7708.67	6488.00
Variance	16594488.14	14077304.69
Observations	150.00	150.00
Hypothesized Mean Difference	0.00	
df	296.00	
t Stat	2.70	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.65	
P(T<=t) two-tail	0.01	
t Critical two-tail	1.97	

Source- Computed by Author by using EXCEL Data Analysis (* means significant at 1%)

T-test result shows that there is significant difference between the quantity of kendu leaf collection in the month of April and May as the p-value is 0.01. The average quantity of kendu leaf collection in the month of April is 7708.67 kerry and in the month of May is 6488.00 kerry. Since this year, there is frequent rain in the month of May, the quantity of kendu leaf collection by the tribes has decreased.

Sal Seed and Tribal Economy

Sal seed is one of the important Produce obtained from Sal (*Shorea - Robursta*) tree, which is predominantly available in Odisha. Production potential of Sal seed in Odisha is estimated to be around 40,000 metric tonnes but it depends on the weather condition prevailing during flowering and fruiting and hence its Production varies from one year to another. Sal seed was nationalized in 1973 by the Government of Odisha and denationalised in 2006. Odisha is rich in Sal forest and Sal trees are seen in most parts of the state except the coastal belt. Sal seed is basically used for the extraction of the oil, which is used mainly in manufacturing of chocolate and other fashionable items. Odisha has a rich depository of Sal seeds accounting for 25% of production in the country. It forms primary ingredient for number of products such as oil, soap, animal/poultry feed, cocabutter that forms a substitute for manufacturing chocolates, rocket fuel and tanning purposes etc. For primary collectors Sal seed selling

has been an important source of earning both amount-wise and time-wise as seeds are sold in agricultural lean seasons of May & June.

As per Government decision since last few years Odisha Forest Development Corporation and Tribal Development Co-operative Cooperation (TDCC) have been assigned to collect & trade Sal Seed from primary gatherers. The area of operation has been divided between these two government agents for making payment to the primary gatherers. These agencies have also to pay the royalty to Govt as fixed by Govt. Government fixes the procurement prices annually. Since last three years the minimum procurement price payable to the primary gatherer as fixed by the Government has varied between Rs 3 to Rs 3.25 per kg. This means these two agencies must pay this minimum price to the primary gatherers. After purchasing from the primary gatherers the Sal seeds are stored temporarily in the Central Godown Spread through out Odisha Which is maintained by these two agencies. After purchasing the Sal Seed from primary gathers the OFDC & TDCC trade them by inviting a national tender in which traders through out the country participate. But the percentage proportions of traders have been found maximum from Chhatisgarh and MP. The tender of the sal seed is invited every year in the month of May & June by advertising it in the nationalized daily both in Oriya and English.

Table-4 Summary Statistics of Sal Seed

Statistical Measures	Age	Gender (M/F)	Edu	HHSIZE	Hours	Distance	Qty (April)	Qty (May)	Total Qty.	Average per day	Income
Mean	33.18	1.98	2.86	4.92	6.05	4.17	775.47	870.38	1645.85	27.48	8229.23
S.D	9.59	0.14	3.26	2.27	1.34	2.64	573.60	588.52	1111.01	18.51	5555.05
Kurtosis	-0.43	46.60	-0.74	0.69	0.09	-0.42	5.25	3.40	4.64	4.66	4.64
Skewness	0.50	-6.93	0.81	0.96	-0.25	0.88	1.94	1.64	1.79	1.78	1.79
Range	40.00	1.00	10.00	11.00	7.00	8.50	3540.00	3493.00	6860.00	115.00	34300.00
Minimum	18.00	1.00	0.00	1.00	2.00	0.50	170.00	97.00	440.00	7.00	2200.00
Maximum	58.00	2.00	10.00	12.00	9.00	9.00	3710.00	3590.00	7300.00	122.00	36500.00
Observations	150	150	150	150	150	150	150	150	150	150	150

Source- Computed by Author by using EXCEL Data Analysis

It is observed that the average age of sal seed collectors is 33.18 years which implies that the middle aged tribal people are collecting sal seeds more in Mayurbhanj district of Odisha. Out of 150 sample collectors of sal seed, 03 are male pluckers and 147 are female pluckers which show that 98 per cent are female sal seed collectors. Since the average year of schooling is 2.86 it implies that less educated tribes are mostly engaged in sal seed collection. The average quantity per day of sal seed is 27.48 kg. and

average income is Rs.8229.23 from the sale of sal seed in two months. It is found that the income per day from Sal seed is Rs.137.15 only. Since the Government has no control over the sal seed, the tribes are not getting remunerative price. So, it is necessary that Government should fix the procurement price of sal seed for tribal welfare. There is also variation in quantity of sal seed collection by the tribes as the standard deviation is 1111.01.

Table-5 Regression Results of Determinants of Sal Seed Collection

Multiple R	0.63			
R Square	0.40			
Adjusted R Square	0.37			
Observations	150.00			
	Coefficients	Standard Error	t Stat	P-Value
Intercept	351.63	1188.88	0.30	0.77
Age	14.71 **	8.89	1.65	0.10
Gender(M/F)	-801.83	525.34	-1.53	0.13
Education	-20.53	24.28	-0.85	0.40
HH Size	200.17	36.25	5.52	0.00
Hours of Collection	264.39	55.28	4.78	0.00
Distance	31.43	29.27	1.07	0.28

Source- Computed by Author by using EXCEL Data Analysis

Table- 5 provides the regression results of determinants of quantity of Sal seed collection in the study area. It is observed that the age of seed collector, hours of collection and distance have positive impact on quantity of sal seed collection by tribal households but gender and education have negative impact of sal seed collection. House hold size and hours of collection are significant variables at 1% level in influencing of quantity of sal seed collection as their p-values are 0.00. The regression coefficient of age of collector is 14.71 which is significant at 10 % level. It implies that as age increases, the quantity of sal seed collection

increases and vice versa. If the tribes will spend more hours in sal seed collection, the quantity collection and tribal livelihood can be improved.

Since sal seeds are collected mainly in April and May after the seeds are ripen properly. Once rain starts in June, it is not possible to collect sal seed and they are not useful. The sal seed oil is used for preparation of Perfumes and medicines. Table-6 provides t test results to test the significance of difference in sal seed collection in april and may every year.

Table- 6 t-Test: Two-Sample Assuming Unequal Variances

	Sal seed Qt.in kg.(April)	Sal seed Qt.in kg.(May)
Mean	775.47	870.38
Variance	329020.92	346355.75
Observations	150.00	150.00
Hypothesized Mean Difference	0.00	
df	298.00	
t Stat	-1.41	
P(T<=t) one-tail	0.08	
t Critical one-tail	1.65	
P(T<=t) two-tail	0.16	
t Critical two-tail	1.97	

Source- Computed by Author by using EXCEL Data Analysis

The average quantity of sal seed collection in the month of April is 775.47 kg. And in the month of May is 870.38kg. T-test result shows that there is difference between the quantity of sal seed collection in the month of April and May but the p-value is 0.16 which implies that it is not statistically significant. Since sal seeds ripen in the month of May and seeds fall down from tree due to wind in May, the quantity of sal seed collection is more. During the field survey, the tribes told that the Government of Odisha has no

provision of purchasing sal seed, there are forced to sell to the private agents at low price.

Suggestions and Conclusion

For overall improvement of tribal collectors, the following suggestions are forwarded.

1. Most of the tribal collectors are illiterate and live in inaccessible areas. So, it is necessary to create awareness among the poor tribes regarding the collection, marketing and other benefits of kendu leaf and sal seed through

leaflets, posters, banners, drumbeating and mike announces.

2. The collectors of and sal seed in the study villages are poor farmers and landless labourers whose economic standard is very poor. So, they are forced to dispose off their produce to the local traders soon after the collection in order to meet their immediate need of consumption. So, the government should revise regularly the procurement price of kendu leaf and sal seed so that the primary tribal collectors can get better income and livelihood.
3. The Munsif, who controls and supervises the collection and storage of kendu leaf, should be provided high incentives to encourage tribal collectors of kendu leaf.
4. Since sal seed provides a substantial income to the tribes in the study area, the government should make provisions for direct purchase from the primary collectors at remunerative price.
5. There is the need for active participation of representatives from collectors, Panchayat Raj Institutions, Self Help Groups and NGOs in price fixation mechanism of Kendu leaf and sal seed.
6. To strengthen the bargaining power of tribal collectors of, the government may form tribal primary collectors association in the study area.
7. Provide micro-credit to the primary collectors for collection and processing of sal seed and kendu leaf to improve the standard of living of tribes.
8. The purchase system of sal seed and kendu leaf may be handed over to the co-operative societies formed by primary collectors. Smooth credit flows to these societies must be ensured by the government till they are able to generate sufficient surplus on their own.
9. The Odisha government should introduce a system of Group Insurance Scheme for all the kendu leaf and sal seed collectors of the state. The Odisha government may approach the Life Insurance Corporation to pay a part of premium from its social security fund and the rest will be paid by the forest department.

To conclude, the government should facilitate the formation of primary co-operative societies among the tribes, allowing them procurement, processing and marketing activities. The government should ensure smooth credit flow to these societies for collection operations so that they can make prompt payments, thereby increasing the confidence of primary collectors which will help in improving their livelihood.

Acknowledgement

This paper has been prepared out of the findings of the minor research project conducted by me with the financial assistance of Indian Council of Social Science Research (ICSSR), New Delhi.

References

- Das, S. (2016), *Forest Dependency and Sustainability of Forest Resources: Evidence from Rural Odisha*, *International Journal of Recent Scientific Research*, Vol. 7, Issue, 8, pp. 13190-13195
- Dash, B.B. (2016), *NTFPs Collection and Marketing Pattern in Tribal dominated villages of Keonjhar district in Odisha*, Volume 4, Issue 8, PP-86-90
- Jodha, N.S (1986): *Rural common property resources: A growing crisis*. Gatekeeper Series No. 24. International Institute for Environment and Development, London.
- Khatri-Chhetri A. (2006): *Local Institutions and Forest Products Extraction: Evidence from Forest Management in Nepal*, SANDEE Working paper, 16-06
- Kumar, A., 1996, *Forest Produce and its Marketing in the district of Rohtas, Bihar (A micro level study)*. *The Bihar J. Agric. Mktg.*, (1) : 82-87.
- Maske Mahesh, Mungole Arvind, Kamble Rahul, Chaturvedi Alka and Chaturvedi Arun, (2011) *Impact of non timber forest produces (NTFP's) on rural tribes economy in Gondia District of Maharashtra, India*, *Archives of Applied Science Research*, 2011, 3 (3):109-114
- Mishra M.R. (1997): *NTFP Prices and State Policy: Revenue vrs Livelihood concern*, Report, Vasundhara, Bhubaneswar
- Mishra, S. (2007). *Household livelihood and coping mechanism during drought among Oraon Tribe of Sundargarh District of Orissa, India* *J. Soc. Sci.*, 15(2): 181-186.
- Naidu, M. R., (2006), *temporal variation in marketing of Minor Forest Product in Tribal zone of Andhra Pradesh*. *Indian J. Agric. Mktg.*, 6(2) : 104.
- Palit, S., (2005), *Role of NTFP in Joint Forest Management*. In: *Proc. of the Sem. on Joint Forest Management (JRM) - Strengthening the FPCs*, arch, 8-9, Calcutta.
- Rout S.D., Panda S.K., Mishra N. and Panda T. (2010). *Role of Tribals in Collection of Commercial Non-Timber Forest Products in Mayurbhanj District, Orissa*, *Stud Tribes Tribals*, 8(1): PP-21-25
- Sharma, M. C., Masih, S. K. and Sharma, C. B., (2004), *Participation in collection of NTFP and their share in Tribal Economy*. *J. Trop. Forest.*, 13(4): 220-225
- Shit Pravat Kumar and Pati Chandan Kumar, (2012) *Non-Timber Forest Products for Livelihood Security of Tribal Communities: A Case Study in Paschim Medinipur District, West Bengal*, *J Hum Ecol*, 40(2): 149-156