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Mapping of Tribal Products and Assessing the Business Potential in Bhadradri Kothagudem, Telangana

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Authors' contributions

This work was carried out in collaboration among all authors. Author RS designed the study, managed the literature search, wrote the protocol, and wrote the first draft of the manuscript. Authors PR and Seema managed the analyses of the study. Author DSC performed the statistical analysis. All authors read and approved the final manuscript.

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ABSTRACT

The tribes in India usually depend on collection and sale of agricultural and forests products for their need and source of income especially for those residing close to and in the forest fringe villages. Hence, this study was conducted to document the forest products collected by the people with the aim of contributing knowledge that could help increase the business potential of these forest products. The study employed simple random sampling technique for selection of sixty (60) respondents from the three tribal groups of Koya, Kondareddie and Lambada. Primary data were collected from 20 tribals from each tribal group and the secondary data was collected from sources like Tribal Welfare department, websites, journals, research papers, tribal stores records and books. The result revealed that majority of the forest products were collected by Koya and Kondareddie tribal groups. The products include amla, bamboo, honey, mahua flowers, tamarind and tendu leaves. These groups are also involved in making of bamboo baskets. On the other hand, Amla, tamarind and honey were collected by Lambada group as they are seen to be shifting

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towards other occupations. From the 216 family members of 60 tribal respondents, about 91 members were involved in collection of forest products. Majority (53%) of the people spend 50 - 100 days in collecting forest produce and around 42% spent 5-8 hours per day. In addition, about 28% each spent 1 - 4 hours and 9 - 12 hours for collection of forest produce in a day. The study also found that all the collected forest products by the tribals in the study area can be further processed to add value and enhance price. The price difference in raw and value added products ranged from 30%to as high as 1593%.

Keywords: Tribal products; collection; mapping; business potential.

1. INTRODUCTION

The tribes in India usually depend on agriculture and forests products. They normally thrive in hilly areas and thatched huts and depend on forest products like edible roots, honey, sal, mahua, amla, harra, behera, char, tendu leaves for their subsistence. Moreover, the men are mostly wildlife hunters and also fishermen using simple indigenous tools such as digging sticks, iron jungle knife and bamboo pots. In addition, bamboo baskets and sticks are mostly used for gathering food [1].

The tribal people migrate from one region to another in search for jobs such as agricultural labor, sale of forest products in exchange for other products such as food and/or money The total population of Scheduled Tribes in India is 10.43 crore which accounts for 8.6 per cent of the total population of the country. In Telangana there are 32 tribes as per A.P. Reorganization Act, 2014. The Tribal population is about nine percent of the total population in the State [2].

Tribal population in ITDA (Integrated Tribal Development Agency) districts is 52.96 per cent of the total tribal population in the State and remaining 47.04 per cent tribals inhabit the plain areas. The main communities of tribals in the State are Koya, Gonds, Pradhan, Kolams, Chenchu, Thoti, KondaReddis, Lambadi, Yerykala and Andh. Tribes are distributed among different districts in Telangana. Most of the tribes depend on agriculture for the income generation. Also, each tribe have own social standards, social framework with unique culture. Hence, the tribes in Telangana alternatively practice agriculture and skilled jobs like wood crafts, painting, bamboo making and dokra crafting based on their traditions and culture [2].

Conversely, the Kothagudem district occupies the largest area under forest. Forest region in these districts spread over Bhadrachalam, Manuguru, Bergampadad, Kothagudem and Yellandu. The common tribes found are Koya, Lambadas, Nayakpods, Kondareddies and Yerukulas. The tribes in this region are dependent upon agriculture and animal rearing as the main occupation. Also, they collect forest products like bamboo, tamarind, honey, amla, mahwa, amla, gum, tendu leaves (beedi), kanuga seeds and modhuga for increasing their income. Aside this, they are involved in making of mats, baskets, plates and some tools for animal hunting. This study aim was to map the available products and assess the business potential of the collected products to the tribes in the study area. The specific objectives were to (1) Map the products made and collected by the tribes in the study area; (2) Explore the business potential of the identified products in the study area.

2. LITERATURE REVIEW

Harini [3] conducted a study on the challenges faced by the Irula tribal women to become entrepreneur. This paper focused on entrepreneurship opportunities available to the Irula tribal women selling Medicinal plants with 52 respondents using simple statistical tools like percentage analysis, factor analysis and t-test. Entrepreneurial skills were essential for creating self-employment and giving employment opportunities to others. Both the Central and the State Governments were trying to promote entrepreneurship especially among economically backward castes, particularly Schedule Castes and Schedule tribes. Schedule tribes constituted 8.6% of country's total population. The Irula Tribal Women possessed local knowledge about uses of plants for medicines. Entrepreneur opportunities could help communities overcome poverty and uplift their standard of living.

Also, Kumar et al. [4] conducted a study on diversity of non timber forest products (NTFPs) in the forest adjoining areas of Jalpaiguri, West Bengal, India. The investigation revealed that although there was high resource potential in the

study sites, there was lack of awareness, scientific knowledge, expertise and adequate market information. The study indicated that NTFPs had high socio-economic significance because of the food and medicinal values. The inventory further revealed that many NTFPs were not properly marketed in the area. The study recommended that proper commercialization of NTFPs could be most effective for the development of people close or near forest areas. However, the study cautioned that measures were needed to maintain and/or sustain the forest resources.

Moreover, Gupta et al. [5] conducted a study on utilization pattern of NTFPs in Ballarpur district of Chhattisgarh. The data were generated from personal interviews of 135 respondents. All the respondents were engaged in collection of forest produce. The average quantity of the various forest products collected by family were 1483.25 stakets (bundles) of tendupattu, 144.51 kg of mahua and 79.25 kg aam per year. The respondents consumed 70.18 per cent of total collected products. From this study, it was concluded that collection, consumption and selling of forest products played a significant role in securing the livelihoods of the tribes.

Saini et al. [6] conducted a study on NTFPs value chain development for rural communities of Madhya Pradesh, India. The study was carried out in Ghughri block of Mandla district and Chakoda species were identified for value chain development through a series of assessment and analysis. Market linkage was developed between traders, processing companies (FPC) and sellers for Chakoda to promote sustainably harvested organic products of the C. tora in local and international markets. This would enable large scale aggregation and processing of Chakoda for trading. Due to the multiple uses and benefits, Chakoda was found to be a viable business model for Mandla district where large numbers of farmers were involved in collection, consumption and sale of Chakoda seeds. Chakoda value chain development and establishing market linkage is ensuring better economic return for the farmers and rural poor involved in collection, processing and marketing. NTFP survey in 25 villages revealed that about 43 plant species are being collected by villagers for self-consumption as well as for sale in the local markets. About 80 per cent of the NTFP species were collected for sale.

Prabakaran et al. [7] conducted a study on role of Non Timber Forest Products in the livelihood of Malayali tribe of Chitteri hills of Southern Eastern Ghats, Tamil Nadu, India. Malayali tribes living close to forest are depend on the forest products and these are an imperative part of the traditional life style in Chitteri hills. Non-Timber Forest Products (NTFPs) such as wild edible fruits, vegetables, fuel wood, fodder plants, house construction materials, agricultural implements and medicinal plants are mostly collected from natural habitats. Economically important 80 species and 216 medicinal species have been recorded by the Malayali tribes. The study has revealed significant role of NTFPs used by Malayali tribes of Chitteri hills. It is clear that these products are extremely important and significant component of the household livelihood of Malayali tribes. The diversity of NTFPs used by Malayali tribes is incredible and shows that they possess a sound knowledge on plant.

Furthermore, Deogaonkar [8] in his paper traditional handicrafts of the Gonds tribes of Vidarbha, Maharastra has mentioned that the state consists of 11 districts having a large number of tribal population. Gonds, Pardhans and Kolam are major tribes. Traditional knowledge of handcrafts among Gonds in general attracts attention. The study has been made to present the traditional knowledge and skills, specially related to woodcraft and bamboo craft of Gond tribes of Vidarbha region. The problem with the media-gonds is that all this traditional knowledge and skills in wood-craft and bamboo-craft is only for their use and for satisfying their communication needs. They never thought of marketing their products with this end in view.

3. MATERIALS AND METHODS

The study was carried out in Bhadradri Kothagudem district. It has largest area under forest spread over Bhadrachalam, Manuguru, Bergampahad, Kothagudem and Yellandu. Tribal people depend on forests for their livelihood and survival in this region. The study was conducted in year 2019-2020. The major tribal groups in the district are Koyas, Lambdas and Konda Reddis. Hence these tribes were selected for conducting the study. The data was collected from 20 households under each tribe. Hence, the sample would consist of 60 tribal households. The primary data was collected from the villagers regarding the products they make and regarding the collection of forest products and use of resources from forest area. The secondary source of data was gathered from Tribal Welfare

department, websites and journals, research papers, tribal stores records and books. The data collected is tabulated and analyzed to draw valid interpretations and conclusions. Tabular analysis was employed to analyze the products they make and forest products they collect, seasonal availability Ajaz-ul-Islam et al. [9] is calculated through the availability and collection of different types of forest products with respect to the month and the business potential of the forest products were presented in a tabular form with averages and percentages [10,11].

4. RESULS AND DISCUSSION

4.1 Mapping of Products Made by the Tribals and Products Collected from the Forest

The tribal people usually lived in the fringes of the forests and most of them were involved in collection of forest produce. The produce collected included plant parts as shown in Table 1. The products collected were amla, bamboo, mahua, tamarind and tendu leaves. Honey was also collected from bee hives and bamboo collected was used for making baskets. The tribals were not involved in making and selling any product except for bamboo baskets in the study area [12].

4.2 Collection of Forest Products by Family Members

Forest produce in the study area was collected by both males and females among the tribal communities. The data with respect to the number of people involved in collection of each forest produce is summarised in Table 2.

Among the Koya tribals 39 people were involved in collection of forest produce and among them, around 15.4 per cent males and 15.4 per cent females were involved in collection of amla fruit, around 38.5 per cent males were involved in bamboo collection and 12.8 per cent females were involved in bamboo collection. Honey, Mahua, Tamarind and Tendu were collected by30.7 per cent of males and 12.8 per cent of females, males 25.6 per cent and females 15.4 per cent, males 15.4 per cent and females 33.3 per cent, males 15.4 per cent and females 12.8 per cent respectively.

Among the Kondareddie who were into collection of forest produce (38 members) were involved in collection of amla about 13.2 per cent of males and 10.5 per cent of females, bamboo was collected by 18.3 per cent males and 15.7 per cent females followed by honey by 18.3 per cent males and 15.7 per cent females, mahua flowers by 8.5 per cent males and 2.6 per cent females, tamarind by 31.5 per cent males and (36.8%) females and tendu leaves by 7.8 per cent males and 7.8 per cent females.

Among Lambada tribals the collection of forest products has reduced over time as they shifted to other occupations. The collected products by Lambadas were amla, honey and tamarind. Majorly amla was collected by 28.5 per cent females and honey was collected by 28.5 per cent males, tamarind was collected by both males 21.4 per cent and females 42.8 per cent. Thus, it was deduced that more tribals were involved in collection of tamarind, followed by honey and bamboo. It was also noticed that a slightly higher percentage of Kondareddies were involved in collection of forest produce in comparison to Koyas.

4.3 Seasonal Availability of Products

Table 3 revealed that bamboo was the only product which was available all year round for daily use and sale in the market. Bamboo baskets were available throughout the year, where as other forest products like amla, honey, mahua, tamarind and tendu were available in the months of December to Febuary, March to June, February to May, March to June and February to March respectively.

Table 1. Forest products collected by the respondents

S/N	Product name	Botanical name	Parts collected
1	Amla	Phyllanthusemblica	Fruit
2	Bamboo	Bambusa vulgaris	Shoot
3	Honey	-	Honeycomb
4	Mahua(ippa)	Madhucalongifolia	Flower
5	Tamarind	Tamarindusindica	Fruit
6	Tendu(beedi)	Diosyrosmelanoxylon	Leaves

Table 2. Family members involved in collection of forest products

S/N	Products	Koya 39 members		Kondareddie 38 members		Lambada 14 members	
		Male	Female	Male	Female	Male	Female
1	Amlafruits(usiri)	6(15.4)	6(15.4)	5(13.2)	4(10.5)	-	4(28.5)
2	Bamboo	15(38.5)	5(12.8)	13(18.3)	6(15.7)	-	-
3	Honey	12(30.7)	5(12.8)	14(36.8)	6(15.7)	4(28.5)	-
4	Mahua flowers	10(25.6)	6(15.4)	6(15.7)	1(2.63)	-	-
5	Tamarind	6(15.4)	13(33.3)	12(31.5)	14(36.8)	3(21.4)	6(42.8)

Table 3. Seasonal availability of the forest products

Seasonal availability	Products					
	Amla	Bamboo	Honey	Mahua	Tamarind	Tendu
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

Table 4. Number of family members involved in collection of forest products

Tribal group	Male	Female	Total
Koya	20(51.3)	19(48.7)	39(100)
Kondareddie	18(47.4)	20(52.6)	38(100)
Lambada	5(35.7)	9(64.3)	14(100)

4.4 Number of Family Members Involved in the Collection of Forest Products

The number of family members involved in collection of forest produce in the study area is shown the Table 4. In Koya tribe, out of total number of 76 members, 39 or 51.3 per cent were involved in collection of forest products. Among the Kondareddie and Lambadas tribes, 53.5 per cent and19 per cent of the members were respectively involved in the collection of forest products.

The table further showed that among the Koyas tribe, 51.3 per cent were males and48.7 per cent were females involved in the collection of forest products. On the other hand, 47.4 percent males and 52.6 percent females were involved in collection in the Kondareddies tribe. Finally, of the Lambadas tribes, 35.7 per cent males and 64.3 per cent females were involved in the collection of forest products (Table 4).

4.5 Days of Collection of Forest Products by Tribal Groups

From the results, forest products were collected based on the season and availability. Majority (49) of the respondent were involved in collection of forest products for 50-100 days followed by 1-50 days (30) and 100- 150 days (12). Among the three groups, Lambada tribes were found to be spending less number of days in collection of forest products. Hence, it could be inferred that for majority of the respondents, collecting forest produce was not a main occupation since they depend on other occupations for their livelihood.

Table 5. Days involved in collection of forest products by the tribal groups

S/N	Tribal group	Gender	Days involved (Days/year)			
			1-50	50-100	100-150	Total
1	Koya	Male	5	13	2	20
		Female	6	11	2	19
2	Kondareddie	Male	4	9	5	18
		Female	6	11	3	20
3	Lambada	Male	5	0	0	5
		Female	4	5	0	9
	Total		**30**	**49**	**12**	**91**

Table 6. Number of hours spent per day in collection of forest products

S/N	Tribal group	Gender	Time spent (hours/day)			
			1-4	5-8	9-12	Total
1	Koya	Male	4	9	7	20
		Female	6	8	5	19
2	Kondareddie	Male	2	8	8	18
		Female	4	10	6	20
3	Lambada	Male	4	1	0	5
		Female	7	2	0	9
	Total		**27**	**38**	**26**	**91**

4.6 Time spent in the Collection of Products

To know the total number of labour hours spent by the tribals in collection of the forest produce, it was necessary to collect the number of hours spent in personal collection of produce per day. The data with respect to the number of hours spent by various tribal groups for collection of forest produce is summarized in Table 6. It was observed that 38 tribals were spending 5-8 hours per day in collection of forest produce. This was more than those spending 1-4 hours (27) and 9 - 12 hours (26) per day.

4.7 Business Potential of the Collected Forest Products

With respect to the collected forest products there are many opportunities which can be availed by adding value to the product through little processing. Bamboo having high economic value and availability throughout the year can be moulded into various value added products which can lead to development and growth in tribal communities through employment generation. Many products like handicrafts, toys are already being made from thin strips of bamboo which could also be used as a substitute for products such as plastic bottles etc. As bamboo is eco- friendly by nature various toys, crafts, bags and colored baskets can be made based on the consumer needs and wants which can be used for both, indoor and outdoor purposes. The other products also have high demand in the market are amla candies and amla herbal powders, this area can also be explored to create more income generation avencees for formers. Honey is used a medicine and also in cosmetics. Mahua flowers are edible and used in food products as like muffins and cakes. Tamarind is used in daily cuisines and is also sold in pastes and candy forms.

The value addition to the products is a skilled task and needs more man power. Some of the value added products are given in the Table 7.wherein the percentage difference in price between raw and value added products is illustrated. This difference implies that there exist a fair opportunity to earn more income by going for value addition as the value added products have higher economic value when compared to the raw forms sold by the tribal communities.

Among the value added products, herbal powder has higher value in all the amla products; bamboo furniture has higher value among all the bamboo products; Honey mixed with nuts has higher value than the raw honey; mahua seed oil has higher value among all the mahua products; tamarind paste has high value among all the tamarind products and tendu dried leaves have more value than the raw ones.

Table 7. Business potential of the collected products

S/N	Product	Unit Sale price (Rs/kg)			
		Raw	Value added products	Price difference (Raw – Value added)	Percentage change
1	Amla	Fresh amla (40Rs/kg)	Dry amla (52Rs/kg)	12	30
			Amla candy (160Rs/kg)	120	300
			Amla juice (220/lt)	180	450
			Amla herbal powder (459Rs/kg)	419	1047
2	Bamboo	Bamboo culm (60Rs/pc)	Basket (110Rs/pc) (convertion ratio- 1:3)	50	83.33
			Bamboo handicrafts (30-500Rs/pc) (Avg price Rs. 235)	175	290
			Bamboo water bottle (1000Rs/bottle)	940	1566
3	Honey	Wild honey (195Rs/kg)	Honey based cosmetics (200-500 Rs (Avg. Price Rs.350)	155	79
		Wild honey (195Rs/kg)	Mixed nuts in honey (550Rs/kg)	355	182
4	Mahua	Fresh flower (20Rs/kg)	Dried flower (25Rs/kg)	5	40
			Mahua seed oil (299Rs/lt)	279	1395
5	Tamarind	Fruit (30Rs/kg)	De-seeded (70Rs/kg)	40	133
			Tamarind candy (400Rs/kg)	370	1233
			Tamarind paste (508Rs/kg)	478	1593
6	Tendu leaves	Fresh leaves 10Rs/bundle	Dried leaves (15Rs/bundle)	5	50

Hence, it can be stated that the products which are being collected from forests by the tribal communities possess lots of business potential which when explored can help the tribals to develop and grow economically

Furthermore, Table 7 showed that value added to the collected forest products yielded better benefits to the tribes with good business potential. Hence, training of the tribals on value addition techniques, technical aspects and proper marketing systems is paramount in the area.

5. CONCLUSION

About half of Kondareddie tribals and Koyas collected forest products to augment their income. However, the number of Lambadas people involved in collecting forest products was very low. The tribes were also involved in marketing bamboo baskets and the forest products collected including amla, bamboo, honey, mahua flowers, tamarind and tendu leaves. Within the Koyas, Kondareddies and Lambada tribes, 51 per cent, 54 per cent and 19 per cent of family members were respectively involved in collection of forest produce. Honey, bamboo and mahua flowers were collected from more number among the Koyas. Honey and tamarind was collected by more number of Kondareddies, whereas Lambadas were more involved in collection of amla, honey and tamarind. Bamboo was the available product throughout the year, whereas other forest products were available in season ranging from three to four months. Majority (53%) of the tribals spent 50-100 days in collection of forest produce and around 42 per cent spent 5-3 hours per day. In addition, 28 per cent each spent 1-4 hours and 9-12 hours for collection of forest produce in a day. All the collected forest products by the tribals in the study area can be further processed by adding value to enhance price. The price difference in raw and value added products ranged from as low as 30 per cent to as high as 1593 per cent.

CONSENT

As per international standard or university standard, participant's written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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