Plant Archives Vol. 24, Special Issue (GABELS), 2024 pp.724-734 e-ISSN:2581-6063 (online), ISSN:0972-5210

Plant Archives

Journal homepage: http://www.plantarchives.org
DOI Url : https://doi.org/10.51470/PLANTARCHIVES.2024.v24.SP-GABELS.112

STUDIES ON QUANTIFICATION OF TRANSACTION AND MARKETING INFORMATION OF NON-TIMBER FOREST PRODUCTS (NTFPS) IN UTTARA KANNADA DISTRICT OF KARNATAKA, INDIA

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ABSTRACT

The study analyzed the significance of quantification of transaction and marketing information by different marketing agencies involved in the marketing of NTFP's towards the livelihood of the local people. Primary data and secondary data were used for the study. The Kadamba Marketing Society marketed 13 commercialized NTFP's during 2019-20 and are commercially important NTFP's. Among the NTFP's marketed, majority were medicinal plants. The 10 medicinal plants were sold to the pharmaceutical companies. The 7 NTFP's used for industrial purpose. The 6 NTFP's used for edible purpose. The TSS societies marketed 23 commercialized NTFP's during 2019-20 and are commercially important NTFP's. Among the NTFP's marketed, majority were medicinal plants. The 23 NTFP's used for medicinal plants were sold to the pharmaceutical companies. The 11 NTFP's used for industrial purpose. The 14 NTFP's used for edible purpose. EDC procured NTFP's such as *Garcinia cambogia* and *Myristica malabarica.* The medicinal plants marketed through society were sold to the pharmaceutical companies. Even though the procurement price given by the private shops and EDC for commercially important NTFP's were higher than that of the kadamba and TSS society, the indigenous people were more benefited by the marketing through the society. Because the EDC and private shops do not share their profit with the collectors, whereas the society gives certain percentage of their profit back to the primary collectors in addition to the procurement price. But the financial constraints during the lean seasons are forcing the indigenous communities to sell their products to the private shops. If the society and EDC can start the value addition units of the NTFP's with the involvement of indigenous communities, it ensures effective utilization of their free time and a better livelihood through enhancement of their income from NTFP's.

Keywords: Quantification, Non-Timber Forest Products, Marketing channel, Marketing society and agency, medicinal plants

Introduction

Non timber forest products (NTFP's) refer to all goods of biological origin other than wood in all its form as well as services derived from forest and other similar land use. Markets for Non-Wood Forest Products range from simple local village level consumers markets to the most sophisticated industrial niche markets in numerous end use sectors in both developed and developing countries. Marketing broadly involves product market research promotion sales and distribution. Marketing requires information of supply and demand quality and quantity, price and range. At national level 55% of employment in the forestry sector is attributed to the NTFP. Women are main gatherers and earners from NTFPs. Ancient Egyptians imported gum Arabic from sudan, trade sandalwood oil during 12th Century. Exports of an essential oil to Philippines in 1864. Brazil nuts trade by Dutch traders during 18th century. In India large population live in and around forest to get a part of their livelihood from NTFPs. About 70 million are tribes – mostly forest dwellers. It provides 50% of income for 20-30% of rural people in India, it provides 60% total forest revenues and 55% forest based employment and 70% of forest-based export earnings.

NTFP based industries provide employment for 1.6 million persons in a year.

Most important marketing function involved in the marketing of NTFPs are gathering / assembling, cleaning, processing, storage transportation and distribution. The main functionaries involved in the marketing channel of NTFPs are primary collectors (tribal and rural people), the small agents/middle men the forest contractors, the processing industries and the end users / consumers. The marketing channel of most of the NTFPs has not been properly defined which is another reason for market in efficiency. Marketing information is very specific to locality which cannot be generalized and especially in trade of forest produces.

Out of the 3000 NTFP species in India, only 126 have developed the marketability (FAO, 2005). These include medicinal plants, edible plants, starches, gums and mucilages, oils and fats, resins and oleo-resins, essential oils, spices, drugs, tannins, insecticides, natural dyes, bamboos and canes, fibers and flosses, grasses, tendu leaves, animal products and edible products. According to FAO (2005) the commercial NTFPs are estimated to generate 3 billion (US$ 100 million) annually in India and also have a 42 per cent share of total removals in the category of other plant products, such as tendu leaves and lac, followed by Brazil and Mexico. India holds monopoly in world trade over some of the NTFPs such as Karaya gum (*Sterculia urens*), myrobalans (*Phyllanthus emblica*, *Terminalia chebula*), Sandalwood chips and dust (*Santalum album*) (Yadav and Basera, 2013). The marketing of NTFPs was regulated by different mechanisms in different states. Under the Forest Produce (Control and Trade) Act 1981, trading is largely controlled through public institutions, such as State Development Corporations, Federations, Cooperatives and tribal societies (Prasad *et al*., 1996). In Karnataka, the NTFPs are marketed through different channels depending upon a variety of factors such as nature of the product, demand, distance of the market etc. With this background, the present investigation was carried out to find out the types and volumes of major NTFPs marketed in the study area with different marketing channels and the prices of NTFPs at different levels to assess the price spread.

Material and Methods

Study area

The data was collected from the Cooperative Societies and contractors at each taluka. The descriptive statistics such as percentage is used to analyze the price spread and collector's share. The price spread is estimated to understand the share of final price going to the primary collectors. The difference between the price paid by the final consumer and price received by the primary collector is Price spread. It includes the costs and margins of different marketing agencies. Collector's share on sale price is the price received by the primary collector expressed as a percentage of sales price of NTFP (i.e., the retail price paid by consumer) (Smith, 1992). The costs of transportation, storage, grading and handling comprise the marketing costs. The returns to the intermediaries for their functions were included in the margin.

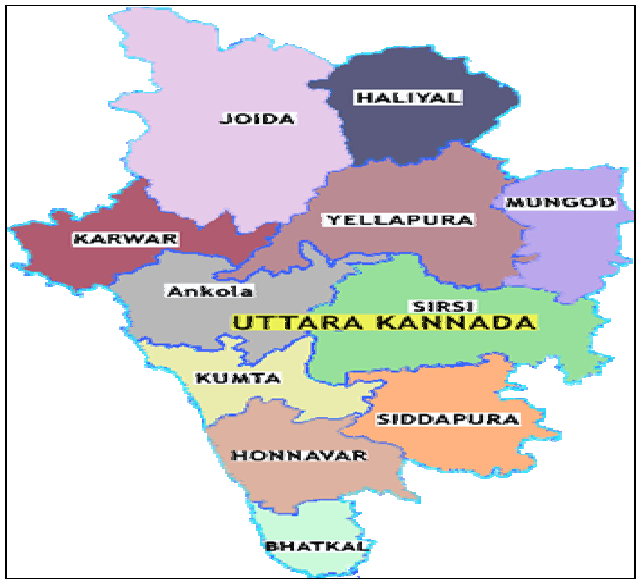

Fig. 1 : Map of the NTFPs study area in Uttara Kannada district.

Formulae to calculate Price spread and Collector's share on sales price

Price spread = Price paid by the consumer – Price received by the primary collector

Or

Price spread = Marketing costs + Marketing margin

$$\text{Collectors share on sales price} = \frac{\text{Collectors prices}}{\text{Sales price of NTFP}} \times 100$$

Results and Discussion

The rights of NTFP collection are vested with the tribal communities in Karnataka. The non-timber forest products at Uttara Kannada were marketed mainly through channels. The marketing agencies identified were Kadamba, TSS and Eco Development Committee. The Kadamba Marketing Society is marketing most of their NTFP's collected through the cooperative society and local collectors. The societies marketed 13 commercialized NTFP's during 2019-20

and are commercially important NTFP's. Among the NTFP's marketed, majority were medicinal plants. The 10 medicinal plants were sold to the pharmaceutical companies. The 7 NTFP's used for industrial purpose were sold to the industries. The 6 NTFP's used for edible purpose (Table 1). The products such as of *Phyllanthus emblica*, Honey, *Syzygium cumini*, *Garcinia indica*, *Sapindus laurifolius* were marketed exclusively by Kadamba society. The Kadamba cooperative society has procured 42,722 kg of NTFP during 2019-20. *Garcinia indica* was the most procured and sold NTFP, followed by *Acacia concinna* and *Syzygium cumini*. The quantity of NTFP sold through the society was 35,697 kg. This shows that the society having sustainability in the procurement and sales of NTFP's. The TSS Marketing Society is marketing most of their NTFP's collected through the cooperative society and some other area. The societies marketed 23 commercialized NTFP's during 2019-20 and are commercially important NTFP's. Among the NTFP's marketed, majority were medicinal plants. The 23 NTFP's used for medicinal plants were sold to the pharmaceutical companies. The 11 NTFP's used for industrial purpose were sold to the industries. The 14 NTFP's used for edible purpose (Table 2). The products such as of *Rubia cordifolia, Zingiber officinale,* Edible gum, *Piper longum* were marketed exclusively by TSS Super market society. EDC procured NTFP's *Garcinia cambogia* and *Myristica malabarica*. The medicinal plants marketed through society were sold to the pharmaceutical companies.

The marketing channels of NTFPs identified for edible, industrial and medicinal purposes are as follows.

Edible products

- **Channel 1:** Primary collector → Kadamba society → Consumer
- **Channel 2:** Primary collector → Private shops → Consumer
- **Channel 3:** Primary collector → EDC → Consumer

Industrial products

- **Channel 1:** Primary collector → Kadamba society → Federation → Industries
- **Channel 2:** Primary collector → Private shops → Industries/ Shops
- **Channel 3:** Primary collector → EDC → Consumer

Medicinal plants

- **Channel 1:** Primary collector → Kadamba society → Pharmaceutical companies
- **Channel 2:** Primary collector → Private traders → Medicinal shops

Similarly, Koppel (1995) reported the study on marketing information systems for non-timber forest products. A market information system is just one element of the whole, one place to start addressing complex marketing strategies. There are many types of marketing information that can be useful in business decision-making. Which kind of information is the most important will depend upon local needs and priorities and the user's position in the marketing chain? Piya *et al.* (2011) reported the study on collection and marketing of non-timber forest products by Chepang community in Nepal. This study describes the role of Chepangs in the marketing channel of those NTFPs and analyses the household socio-economic characteristics that influence the collection and marketing of NTFPs by Chepangs in Shaktikhor. Ahmed *et al* (2016) reported a study in Paschim Medinpur district in West Bengal and found that the main factors affecting NTFP collection and trade are geographical location of market, season, price and demand.

Further, Alex and Vidyasagaran (2016) reported three agents (society, agents and EDC) involved in the marketing of NTFP's used for edible and industrial purposes in the Western Ghats region of Attappady, Kerala and the indigenous people were more benefited by the marketing through the society. Phounvisouk *et al* (2013) reported an increased demand for NTFP products from Luang Namtha in the cross-border markets of China and Thailand, which has led to rapid depletion of some forest products (food, medicines, fibers, extracts and ornamentals products). Mishra and Shrivastava (2015) reported at least 83 traders in Dindori and 70 in Mandla district of Madhya Pradesh state who are engaged in trading NTFPs in the local haat bazaars. And opined that local markets are more profitable than markets of big cities, particularly in case of Amla, Mahua flowers, Imli fruits etc. Shahapurmath *et al.* (2019) studied the productivity and utilization of Non Wood Forest Products (NWFPs) under agroforestry systems for rural livelihood and economy in Western Ghats Region of Karnataka (India). The Forest Department has also encouraged the conservation of these forest produces by the forming Village Forest Committees (VFCs) as a part of Joint Forest Planning and Management (JFPM). Under mechanism of benefit sharing. Non-Timber Forest

Produces are sharedwith10% to Government and 90% to VFC. Out of the share of the VFC, a minimum of 50% shall go to the Village Forest Development Fund (VFDF) and the balance will be shared by the members of the VFC as dividends or will go to the Village Development Fund (VDF) as decided by the VFC. These will generate income and employment to the people. This is the right time to initiate and conduct agroforestry activities for NWFP, which have the potential of changing the landscape of the country to a great extent.

Table 1 : The marketing channels and types of various NTFPs in Sirsi and Yellapur talukas.

S.No	Scientific Name	Vernacular Name	Purpose	Marketing agency	Consumer
1	*Phyllanthus emblica*	Amla	Industrial/ Medicinal/ Edible	Society	Local
2	*Maranta arundinacea*	Arrow root	Medicinal/ Edible	Society	Local
3	*Bacopa monnier*	Brahmi powder	Medicinal	Society	Local
4	Honey	Honey	Industrial/ Medicinal/ Edible	Society	Local
5	*Syzygium cumini*	Jambul juice	Industrial/ Medicinal/ Edible	Society	Local
6	*Glycyrrhiza glabra*	Jeshtimadh	Medicinal	Society	Local
7	*Garcinia indica*	Kokum	Medicinal/ Edible	Society	Local
8	*Garcinia indica*	Kokum cream	Industrial	society	Local
9	*Piper longum*	Pippli	Medicinal	Society	Local
10	*Acacia concinna*	Shikakai	Industrial	Society	Local
11	*Sapindus laurifolius*	Soapnut	Industrial	Society	Local
12	*Curcuma longa*	Turmeric	Industrial/ Medicinal/ Edible	Society	Local
13	*Artocarpus lacucha*	Vate huli	Medicinal	Society	Local

Table 2 : The marketing channels and types of various NTFPs in Sirsi and Siddapur talukas.

Sl. No	Scientific Name	Vernacular Name	Purpose	Marketing agency	Consumer
1	*Salvia columbariae*	Chia seed/Alhavi bija	Medicinal/ Edible	society	Local
2	*Chrysopogon zizanioides*	Lavncha /vetiver root	Industrial/ Medicinal	Society	Local
3	*Tribulus terrestris*	Neggin mullu	Medicinal	Society	Local
4	*Tribulus terrestris*	Neggin mullu (powder)	Medicinal	Society	Local
5	*Cuminum cyminum*	Cumin seed	Medicinal/ Edible	society	Local
6	*Euphorbia parviflora*	Halaballi root	Medicinal	Society	Local
7	*Euphorbia parviflora*	Halaballi root powder	Medicinal	Society	Local
8	*Rubia cordifolia*	Manjishta	Medicinal	Society	Local
9	*Acorus calamus*	Sweet flag	Medicinal	Society	Local
10	*Zingiber officinale*	Ginger (dry)	Medicinal/ Edible	Society	Local
11	*Ocimum tenuiflorum*	Tulasi powder	Industrial/ Medicinal/Edible	Society	Local
12	*Embelia ribes*	Vai vidang	Medicinal	Society	Local
13	*Asparagus racemosus*	Shatavari	Industrial/ Medicinal/Edible	society	Local
14	*Anethum sowa*	Sowa/dill	Medicinal/ Edible	Society	Local
15	*Gymnema sylvestre*	Madhunashini	Industrial/ Medicinal/Edible	Society	Local
16	*Picrorhiza kurroa*	katukhurohani	Industrial/ Medicinal/Edible	Society	Local
17	*Swertia chirayita*	Chirayita	Industrial/ Medicinal/Edible	Society	Local
18	Edible gum	Edible gum	Industrial/ Medicinal/Edible	Society	Local
19	*Glycyrrhiza glabra*	Jeshtimadh	Industrial/ Medicinal/Edible	society	Local
20	*Glycyrrhiza glabra*	Jeshtimadh (powder)	Industrial/ Medicinal/Edible	Society	Local
21	*Piper longum*	Pippli	Medicinal	Society	Local
22	*Caesalpinia bonducella*	Gajikekayi	Industrial/ Medicinal/Edible	Society	Local
23	*Piper caninum*	Piper	Industrial/ Medicinal/Edible	Society	Local

Table 3 : The quantity of transaction and marketing details of NTFP's marketed through Kadamba Society in Sirsi and Yellapur talukas.

S.No	Name of NTFP species	Quantity procured (kg)	Quantity sold (kg)	Collection rate (Rs/kg)	Sales rate (Rs/kg)	Price spread	Collector's share (%)
1	*Acacia concinna*	8000	6000	60	75	15	80.00
2	*Artocarpus lacucha*	2000	1500	65	80	15	81.25
3	*Bacopa monnier*	50	40	600	750	150	80.00
4	*Curcuma longa*	3000	3000	65	80	15	81.25
5	***Garcinia indica***	**10000**	**8000**	**70**	**80**	**10**	**87.50**
6	*Garciniaindica (cream)*	40	30	450	600	150	75.00
7	*Glycyrrhiza glabra*	60	60	600	750	150	80.00
8	***Honey***	**10000**	**9000**	**220**	**260**	**40**	**84.61**
9	*Maranta arundinacea*	50	45	450	600	150	75.00
10	*Phyllanthus emblica*	2500	2000	50	65	15	76.92
11	*Piper longum*	22	22	450	600	150	75.00
12	*Sapindus laurifolius*	2000	2000	12	17	5	70.58
13	*Syzygium cumini*	5000	4000	75	90	15	83.33

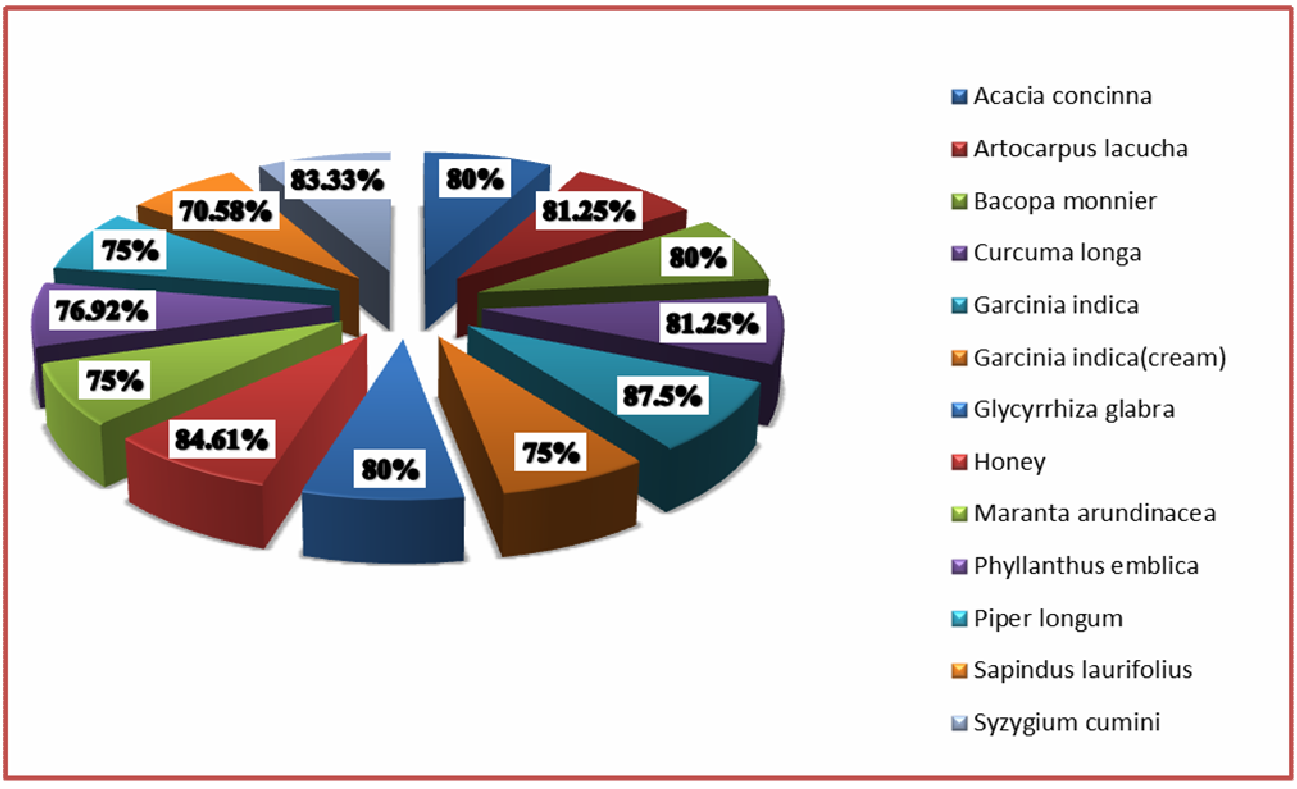

Fig. 3 : Graphical representation of Collector's share through Kadamba Society in Sirsi and Yellapur talukas.

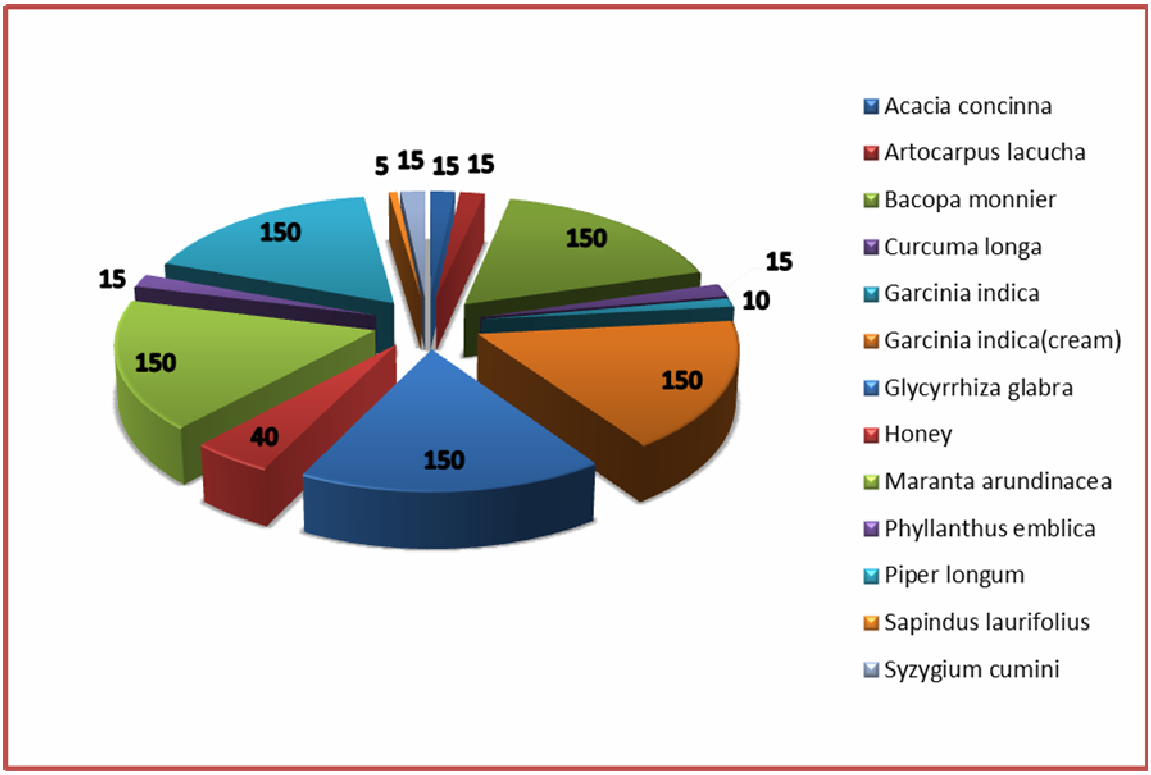

Fig. 4 : Graphical representation of through Price spread Kadamba Society in Sirsi and Yellapur talukas.

Table 4: The marketing details of NTFPs marketed through TSS Super market society in Sirsi and Siddapur

SI. No	NTFPs	Collection rate (Rs/kg)	Sales rate (Rs/kg)	Price spread	Collector's share (%)
1	*Salvia columbariae*	76.22	95	18.78	80.23
2	*Chrysopogon zizanioides*	571.43	730	158.57	78.27
3	*Tribulus terrestris*	228.57	290	61.43	78.81
4	*Tribulus terrestris* (powder)	342.86	390	47.14	87.91
5	*Cuminum cyminum*	380.95	480	99.05	79.36
6	*Euphorbia parviflora (Root)*	809.5	1020	210.5	79.36
7	*Euphorbia parviflora* (powder)	952.38	1200	247.62	79.36
8	*Rubia cordifolia*	1142.84	1650	507.16	69.26
9	*Acorus calamus*	142.86	170	27.14	84.03
10	*Zingiber officinale*	342.86	415	72.14	82.61
11	*Ocimum tenuiflorum*	342.88	415	72.12	82.62
12	***Embelia ribes***	**1047.62**	**1105**	**57.38**	**94.80**
13	*Asparagus racemosus*	342.86	435	92.14	78.81
14	*Anethum sowa*	133.33	190	56.67	70.17
15	*Gymnema sylvestre*	342.86	435	92.14	78.81
16	*Picrorhiza kurroa*	2285.71	2880	594.29	79.36
17	*Swertia chirayita*	761.9	920	158.1	82.81
18	Edible gum	211.55	255	43.45	82.96
19	*Glycyrrhiza glabra*	266.67	345	78.33	77.29
20	*Glycyrrhiza glabra* (powder)	304.75	384	79.25	79.36
21	*Piper longum*	838.1	1060	221.9	79.06
22	*Caesalpinia bonduc*	228.57	290	61.43	78.81
23	*Piper caninum*	3047.64	3840	792.36	79.36

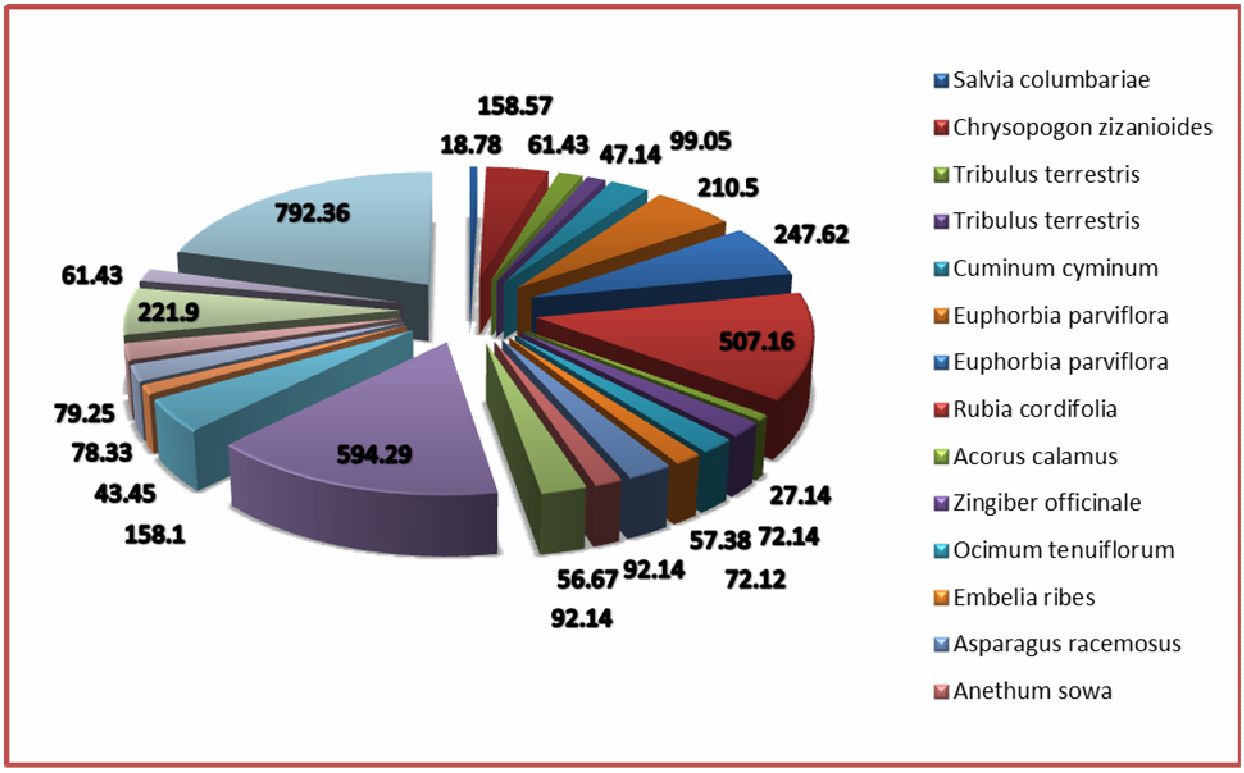

Fig. 5 : Graphical representation of Price spread through TSS Society in Sirsi and Siddapur talukas.

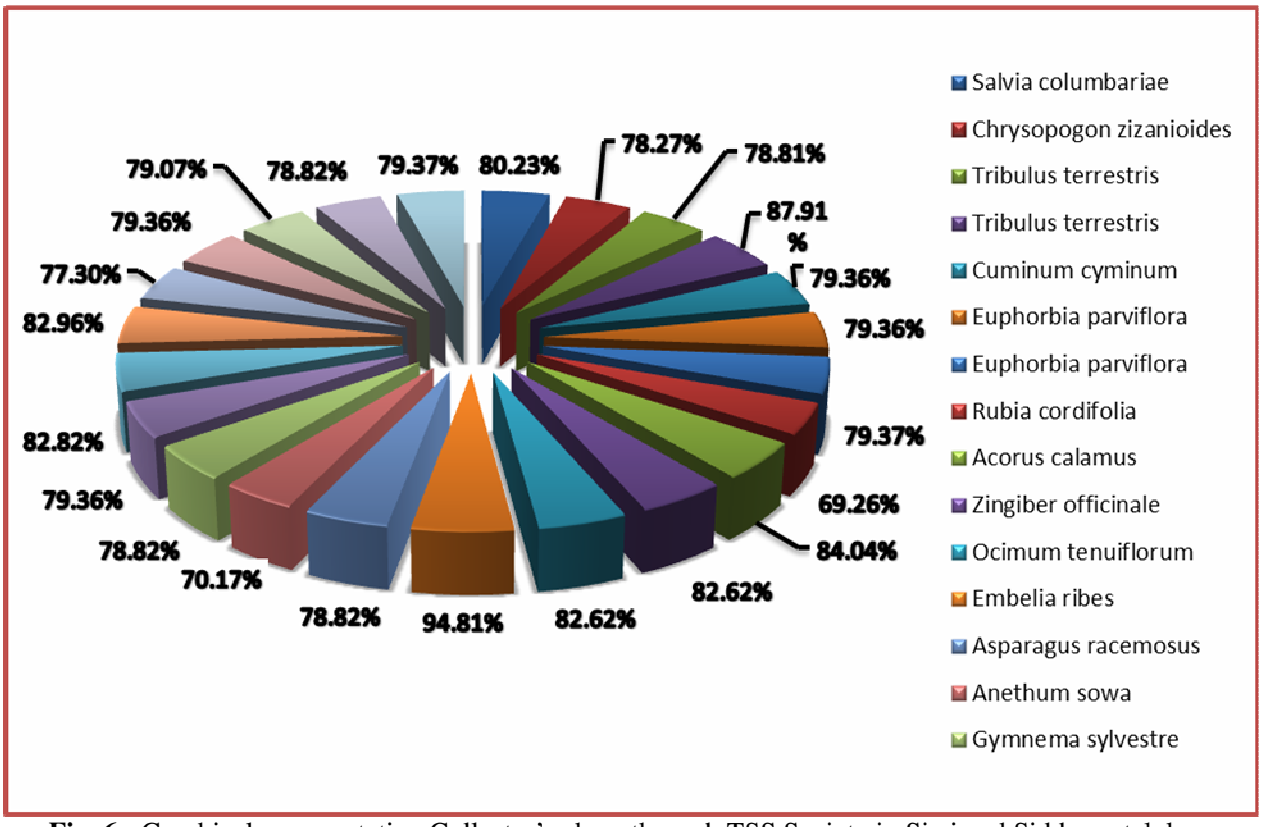

Fig. 6 : Graphical representation Collector's share through TSS Society in Sirsi and Siddapur talukas.

According to the rules of the SC/ST Federation they would give 80 per cent of their sales price to the collectors. The societies are passing 80 per cent of the same to the collectors towards collection charges. But in the present study, analysis showed (Table 3 and 4) that in most of the NTFP's this target was achieved. Considering the year wise contribution of the society to the collectors, in some years the collection price was lesser than the sales price. It was also having a positive impact on the income of the collectors. The society would provide an advance to the collection agent in each settlement before the start of collection season. They also announced the quantity of NTFP to be collected from each settlement along with the price. Based on the marketing cost involved, the society procured NTFP's at different prices from the various settlements. The societies are given interest free advance which is distributed to the commission agents to pay the collection charges to the collectors. At the end of each day, the collected NTFP was quantified in the settlement itself and agent will pay the amount based on the quantity collected. The agent entered the quantity collected by each member of the society in the register and based on that the society provides its bonus to the members. The society distributed 25 per cent of their profit to the members as bonus.

Table 5: NTFPs marketing through EDC in Sirsi during 2019-20.

Sl.No	Vernacular Name	Scientific Name	Purpose	Marketing agency	Consumer
1	Uppage	*Garcinia cambogia*	Industrial/Medicinal/ Edible	EDC	Local
2	Nutmeg	*Myristica malabarica*	Medicine	EDC	Local

Table 6: The marketing details of NTFPs marketed through EDC in Sirsi during 2019-20

SI. No	NTFPs	Collection rate (Rs/kg)	Sales rate (Rs/kg)	Price spread	Collector's share (%)
1	*Garcinia cambogia*	67	80	13	83.75
2	***Myristica malabarica***	**440**	**470**	**30**	**93.61**

The EDC marketed the major NTFP's such as Nutmeg and *Garcinia cambogia* through their ecoshop. Nutmeg was the most procured and sold product, followed by *Garcinia cambogia* (Table 6). As compared to cooperative society the products were having better price spread, since the consumers were tourists. Even though the price spread was higher for EDC, the collector's share was less than that of the society.

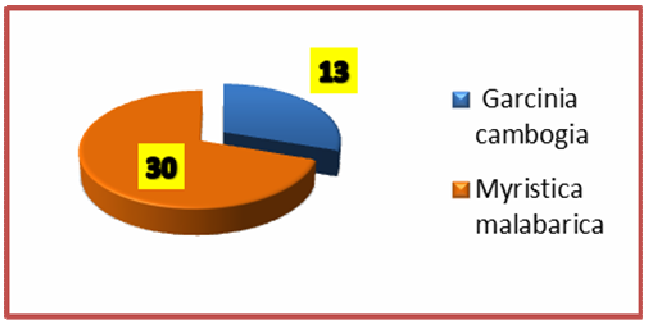

Fig. 7 : Graphical representation of Price spread through EDC.

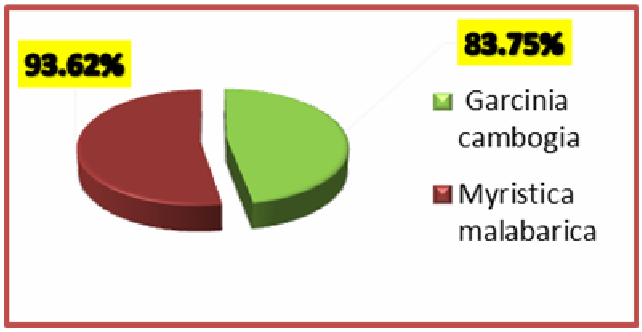

Fig. 8 : Graphical representation of Collector's share through EDC

Marketing channels of identified and recognised NTFPs species in the study area

1. *GARCINIA GUMMI-GUTTA* (UPPAGE): The fruits of *Garcinia cambogia* (= *G. gummi-gutta*, Family; Clusiaceae = Guttiferae) are locally called as Uppage. Fruits are yellow in colour. It has think rind with ridges. The fruit mature during June to August. Fruits contain nearly 30% of hydroxyl Citric acid (HCA), which is used as a bio-slimming agent.

Traditionally, the fruits have been used as a substitute for tamarind in the study area and also in kerala. It is also used in chemical industries and also as a medicine for rheumatism. Vinegar and black liquor is prepared from fruit is used in fish food preparation. There was a huge demand for fruit. The prices of fruit Rs.70-80/kg in 2019. The sudden drop in the market price has disturbed the local NTFP market and the collector's economy.

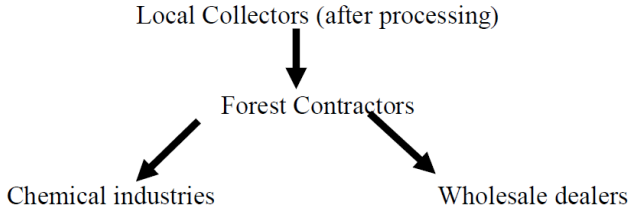

Fig. 9 : Marketing Channel for Uppage

2. *GARCINIA INDICA* (KOKAM): Kokam is the vernacular name for the soft drink prepared out of the rind of the fruit of *Garcinia indica* (family-Clusiaceae). Fruit mature during April-may. One kg. of fruit yield about 300g. of rind which inturn will yield about one litre of kokam juice. Price of dried rind was Rs.80 per kg and kokam cream was Rs. 600 per kg during 2019-2020.

Kokam juice in concentrated from is marketed under trade names such as Birinda, 5YES, etc. in the local market. Often the local soft drink companies market it without trade name. Each bottle of 150 ml. costs Rs.15-20. The rind powder is also marketed in the brand 'Sapna'. Local market has a little contribution of kokam butter which is exported to Italy and other European countries.

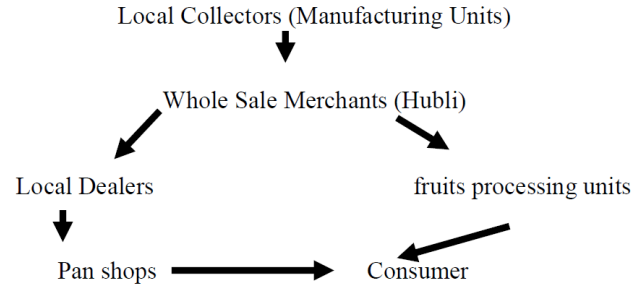

Fig. 10 : Marketing Channel for kokam

3. *Sapindu STRIFOLIATUS* (Soapnut): The fruit of *Sapindu strifoliatus* and *S. laurifolia* (Family: Sapindaceae) popularly known as soapnut. The pericarp of soapnut contains a chemical substance known as "saponin" which is an essential ingredient of soaps, detergents and other industrial products. Fruits have been traditionally used as detergents for washing clothes, hair, jewels, tarnished ornaments and fabrics. Fruit also has medicinal values and used for curing asthma, diarrohea and tuberculosis. The fruit is marketed generally in three different grades. In fact, the collectors sell the ungraded, raw seeds to contractor at Rs. 17 per kg during 2019-20. The contractor after drying and cleaning divide them into three grades. Few collectors grade the seeds and sell at better prices.

First grades fetch the highest price. Primary collectors are more benefited by selling I grade fruit than by selling III grade fruit. The different grades are:

I Grade: Large size, brown colour and shining fruits.

II Grade: Medium size, brown colour fruit.

III Grade: Small size, blackish brown colour and shiningless.

4. *MYRISTICA MALABARICA* (NUTMEG): Seeds and arils of *Myristica malabarica, M. dactyloides, M. fatua* and *M. fragrans* (Family Myristicaceae) are important products used in the local market. The first two are indigenous and the last two are introduced. Avery low quantity of aril is obtained from each frit. The average nut to aril ratio after drying is only 0.16. Seeds are sold at lower prices but, the arils fetch a very price. Hence, the tribal and local people collect almost all available seeds and aril and sell it in the weekly market or to businessmen or the local spice shop owners. The aril then will be sold at 176-217 per cent higher prices. Price of the product is Rs. 470 per kg during 2019-20.

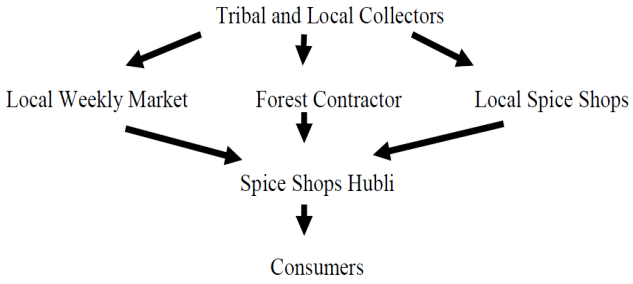

Fig. 11 : Marketing Channel for Nutmeg

5. *ACACIA CATECHU* (KATHA): Heart wood of *Acacia catechu* (Family Mimosaceae) is the principal species used in manufacturing katha. The chief constituent of the heart wood is catechin. (Katha) and catechu tannic acid (cutch). *Acacia catechu* is commonly found in the tropical deciduous and thorn forests of northern india. In south india, it is replaced by *Acacia chundra* which is mostly distributed in Tamil Nadu and Andhra Pradesh and in northern part of Karnataka. The yield of Katha is very meager i.e, 4.5-5 percent. This implies that to obtain 5 kg.of katha,

nearly 100 kg of heart wood is used. Katha is available in two forms in market viz., 1) semisolid or paste form and 2) cube or biscuit form. Katha has several uses: as in indispensable ingredient in the preparation of chewing pan; in medicines as in astringent and a digestive; for external application as a coolant on burnt skin.

Katha in large quantity is bought from manufacturing units at Varanasi (U.P), to pan shopkeepers. In the Hubli market, Katha is available at Rs, 550-580/kg. In biscuit form and rs. 120/kg in cube form. In Sirsi market the same costs Rs.600/kg and Rs.130/kg respectively. The retail price of paste form is Rs. 8/- per 50 g.

6. *SYZYGIUM CUMINI* (JAMUN): *Syzygium cumini*, commonly known as Malabar plum, Java plum or black plum, is an evergreen tropical tree in the flowering plant family Myrtaceae. *Syzygium cumini* trees start flowering from March to April.The fruits develop by May or June and resemble large berries; the fruit of *Syzygium* species is described as "drupaceous". The fruit is oblong, ovoid. Unripe fruit looks green. As it matures, its color changes to pink, then to shining crimson red and finally to black color. A variant of the tree produces white coloured fruit. The fruit has a combination of sweet, mildly sour and astringent flavour and tends to colour the tongue purple. The seed of the fruit is used in various alternative healing systems like Ayurveda , Unani and Chinese medicine. The extract of the fruit and seeds are found be effective against hyperglycemia in diabetic rats Wine and vinegar are also made from the fruit. It has a high source in vitamin A and vitamin C.

jamun is available at Rs. 90 per kg during 2019-20.

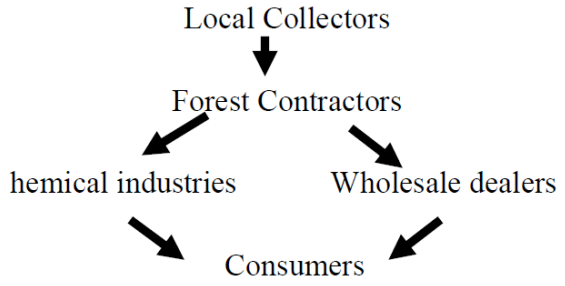

Fig. 12 : Marketing Channel for Jamun

7. *ACACIA CONCINNA* (SHIKAKAI): *Acacia concinna* is a climbing shrub native to Asia, (Family - Fadaceae) common in the warm plains of central and south India. The tree is food for the larvae of the butterfly *Pantoporia hordonia*. Alkaloids are found in the tree's fruit. It is traditionally used as a shampoo. The plant parts used for the dry powder or the extract are the bark, leaves or pods. The bark contains high levels of saponins, which foaming agents are found in several other plant species used as shampoos or soaps. Saponin-containing plants have a long history of use as mild cleaning agents. Saponins from the plant's pods have been traditionally used as a detergent, and in Bengal for poisoning fish; they are documented to be potent marine toxins.

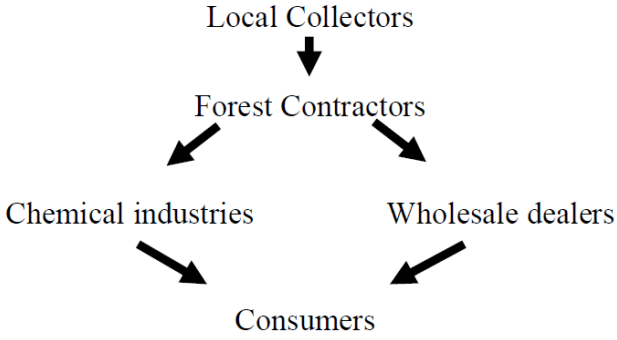

Fig. 13 : Marketing Channel for Shikakai

Conclusion

The Kadamba Marketing Society has highest marketing NTFP of *Garcinia indica.* Price spread is 10Rs/kg and Collector's share is 87.50% followed by Honey Price spread is 40 Rs/kg and Collector's share is 84.61% and lowest marketing NTFP is *Piper longum* Price spred is 150 Rs/kg and Collector's share is 75%. TSS Super market society has highest marketing NTFP of *Embelia ribes*., price spread is 57.38Rs/kg and Collector's share is 94.80%. And lowest marketing NTFP is *Rubia cordifolia* with price spread of 507.16 Rs/kg and Collector's share is 69.26%. EDCs have only two NTFP's products marketing viz., *Garcinia cambogia* with price spread of 13 Rs/kg and Collector's share is 83.75 %; *Myristica malabarica* with price spread of 30 Rs/kg and Collector's share is 93.61%. Even though the procurement price given by the private shops and EDC for commercially important NTFP's were higher than that of the kadamba and TSS society, the indigenous people were more benefited by the marketing through the society. Because the EDC and private shops do not share their profit with the collectors, whereas the society gives certain percentage of their profit back to the primary collectors in addition to the procurement price. But the financial constraints during the lean seasons are forcing the indigenous communities to sell their products to the private shops. If the society and EDC can start the value addition units of the NTFP's with the involvement of indigenous communities, it ensures effective utilization of their free time and a better livelihood through enhancement of their income from NTFP's.

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