

# Non-Timber Forest Products of Koppal District, Karnataka: Indigenous Use

M. Siddeshwari<sup>1</sup>, K. Kotresha<sup>2</sup>

<sup>1</sup>Research Scholar, Department of Botany, Karnatak Science College, KUD.

<sup>2</sup>Associate Professor, Department of UG, PG & Research in Botany, Karnatak Science College, Karnatak University Constituent College, Dharwad, Karnataka-580001, India.

## Abstract

The purpose of this study is to evaluate non-timber forest products in the Koppal districts of Karnataka. The report found the involvement of the local inhabitants in the collection of various NTFPs and the result is structured on a survey conducted from 2020 to 2023, resulting in the documentation of a total 114 species under 48 families and 94 genera identified as NTFPs, Among these trees were dominated with 50(44.24%), followed by shrubs 19(16.18%), herbs 30(27%), and climbers 14(12.38%), which were used in different categories by the locals, such as medicinal, wild edible fruit and vegetables, fodder, and domestic purposes. In different category of utility leaf were used most with 48(48%), followed by fruits 37(33%), seed 11(10%), whole plant 9(8%), stem 8(7%), shoot & flower 7(4%), root 6(5.3%) & dye & latex 1(0.88%).

**Keywords:** Livelihood, Commercial potential, Ethno-botany, Medicinal value, local people.

## INTRODUCTION

India has an estimated diversity of 3000 plant species from which NTFPs, generally known as Minor Forest Produces (MFP). NTFP usage categories are recently adopted by Inter-national Economic Botany Data Collection Standard. The categories of valuable plants in specific areas: food, food additives, animal food, animal products, construction, materials, fuel, medicine, poisons, social uses, environmental uses.

NTFPs are estimated to generate 70% of all employment in Indian Forestry sector commercial NTFPs alone are estimated to generate Rs 3 Billion annually (Shiva, 1995). In complete disregard to subsistence and economic dependence of local people and their ethnic/natural rights, but little is known about their collection and marketing dynamics [2].

Indigenous peoples have relied on non-timber forest products (NTFPs) for millennia as a vital source of food, medicine, and handicrafts. Future creation of new nutraceutical goods may be influenced by scientific study on the restoration of NTFP relevance and value addition. The goal of the current study is to better understand the variety of non-timber forest products produced in Kalyana Karnataka region's Koppal District of Karnataka.

**MATERIALS & METHODS**

*Study area*

The current research was conducted in the Koppal district from 2021 and 2022, the district situated in Eastern part of Karnataka state, covering 8,458 sq km. (Fig. 1). It is 500 meters above sea level and is located between co-ordinates 15<sup>o</sup> 09' 00" to 16<sup>o</sup> 03' 30" N and 75<sup>o</sup> 47' 30" to 76<sup>o</sup> 48' 10" E. The landscape includes plane land with hillocks, rivers. Forest types is dry deciduous, and scrub type. The annual rainfall is 571.92 mm, and the soil is partly red sandy and black cotton soil. The average temperature ranges from 16°C to 45°C. Seven villages were chosen for the study, 1 from each taluk namely, Gangavati, Kushtagi, Karatigi, Kanakagiri, Alavandi, Yalaburga, Itagi.

*Collection & identification of NTFPs*

The NTFPs were collected in the presence of the responders. Plant specimens were collected, pressed, and prepared herbarium using the standard method proposed by Jain and Rao (1977). The collected specimens were identified using floras and monographs and were used to verify the scientific names. To investigate the use of NTFPs, a total of 31 respondents from 7 randomly selected villages were questioned using a well-developed semi-structured questionnaire.

**RESULT**

Total, 112 species under 48 families and 96 genera were identified as NTFPs and among top three families Fabaceae stands first with 20 species (57%) followed by Amaranthaceae with 10 species (29%) and Euphorbiaceae with 5 species (14%).

Habit status of collected plants species trees were dominated with 48(42.85%), followed by shrubs 19(16.18%), Herbs 31(27.61%), and climbers 14(12.38%) (Fig 2).

Figure 2. Habit status of NTFP yielding plants in Koppal district

Collected NTFPs, which were used in different category by locals such as medicinal, wild edible fruit and vegetables, fodder, domestic purposes. Among collected specimens utility status includes, leaf were used most with 48(48%), followed by fruits 37(33%), seed 11(10%), whole plant 9(8%), stem 8(7%), shoot & flower 7(4%), root 6(5.3%) & dye & latex 1(0.88%) (Fig 4).

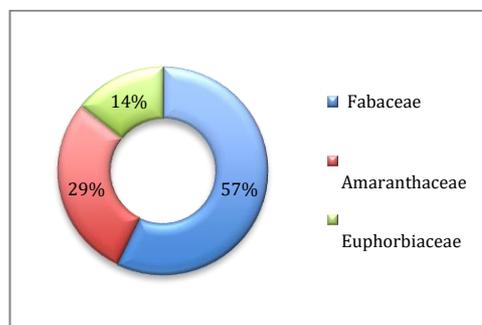


Figure 2. Habit status of NTFP yielding plants in Koppal district

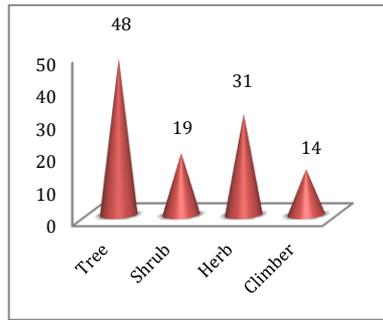


Figure 3. Top 3 families of NTFP yielding plants in Koppal district

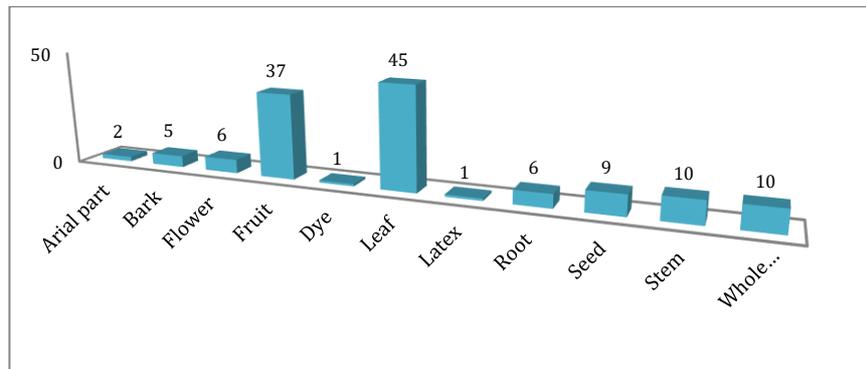


Figure 4. Utility status of NTFP of Koppal district

## DISCUSSION

Study found that many of the local people were interested in collection and marketing of NTFPs in the study area. However, there were several challenges that were limiting their interests.

The Role of Non Timber Forest Products in Karnataka State There is neither any policy on NTFP in the state or any laws that have direct consequences on NTFP- its collection, processing and marketing. Several legal documents have some rules regarding the extraction of certain NTFP such as the Karnataka Forest Manual; the Karnataka Forest Privilege Rules, 1959; the Karnataka Forest Act, 1963; and the Karnataka Forest Rules, 1969, [15].

The survey of minor forest products and their values in Sirsi taluk reported production of 20 minor forest products with its processing, medicinal uses and other uses [16].

A work on utilization pattern of non-timber forest products (NTFPS) in Siddapura taluk of Uttara Kannada district of Western Ghat region, Karnataka and reported total of 19 NTFP species belonging to 17 families are documented [13].

## CONCLUSION

Non-timber forest products (NTFPs) are an important component of the traditional way of life of peoples in Koppal district, and NTFPs including fuelwood, building materials, wild edible vegetables, and medicinal plants are generally obtained in the wild. The inquiry found that the use of NTFPs has contributed significantly to the local livelihood in the study area, emphasizing the importance of documenting plant usage for the greater good of mankind and recommending its conservation.

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SL No.	BOTANICAL NAME	FAMILY	H AB IT	PARTS USED	USES
1	<i>Abrus precatorius</i> L.	Fabaceae	C	Sd	Used for decorative & gold weighing purpose
2	<i>Acacia auriculiformis</i> A.Cunn. ex Benth	Fabaceae	T	St	Fodder
3	<i>Acacia catechu</i> (L.f.) Willd.	Fabaceae	T	Br	Used with betal for mastication
4	<i>Acacia leucophloea</i> Willd.	Fabaceae	T	Br	Red dye
5	<i>Acacia nilotica</i> (L.) Willd. ex Delile	Fabaceae	T	St, Br, Lf	Black to Dark dye, Firewood
6	<i>Acacia sinuata</i> (Lour.) Merr.	Fabaceae	T	Fr	Pods are used in washing and shampooing
7	<i>Acalypha indica</i> L.	Euphorbiaceae	H	Lf	The juice extracted of leaves, mixed with lime and applied on skin to cure Ringworm diseases
8	<i>Achyranthes aspera</i> L.	Amaranthaceae	H	Rt, Lf	Root & leaf paste is applied on ringworm infected area
9	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	T	Fr	Ripe fruits are eaten
10	<i>Aerva javanica</i> Juss.	Amaranthaceae	H	Wp	Fodder
11	<i>Aerva lanata</i> (L.) Juss. ex Schult	Amaranthaceae	H	Wp	Fodder
12	<i>Albizia lebbeck</i> (L.) Benth	Fabaceae	T	Lf, Fl, Sd	Fodder
13	<i>Alternanthera sessilis</i> (L.) DC.	Amaranthaceae	H	Wp	Fodder
14	<i>Aloe vera</i> L.	Asphodelaceae	H	Lf	Flesh of leaves is used to treat skin problems
15	<i>Amaranthus spinosus</i> L.	Amaranthaceae	H	Sh	Shoots are made as curry.
16	<i>Amaranthus tricolor</i> L.	Amaranthaceae	H	Lf	Vegetable
17	<i>Amaranthus viridis</i> L.	Amaranthaceae	H	Lf	Vegetable
18	<i>Anacardium occidentale</i> L.	Anacardiaceae	T	Lf	Leaves used to treat malaria, gum problems.
19	<i>Andrographis</i>	Acanthacea	H	Wp	Whole plant is used to treat leprosy

	paniculata (Burm.f.) Wall. ex Nees	e			
20	Annona squamosa L.	Annonaceae	T	Fr	Ripe fruits are eaten directly.
21	Argemone mexicana L.	Papaveraceae	H	Sd	Seed oil is applied on infected skin to relieve itching and skin allergies till it cures.
22	Asclepias curassavica L.	Apocynaceae	S	Rt	Root powder is given in empty stomach to treat cholelithiasis (gall bladder stone).
23	Artocarpus heterophyllus Lam.	Moraceae	T	Fr, sd	Ripe fruits are eaten directly & seeds, boiled to consume.
24	Azadirachta indica A.Juss.	Meliaceae	T	Fr	Oil is extracted from ripe fruits
25	Bacopa monnieri (L.) Wettst.	Scrophulariaceae	H	Lf	Vegetable
26	Barleria prionitis L.	Acanthaceae	S	Fl	Garland
27	Basella alba L.	Basellaceae	C	Lf	Used as vegetable
28	Bauhinia racemosa Vahl	Fabaceae	T	Lf	Fodder
29	Bauhinia variegata L.	Fabaceae	T	Lf	Fodder
30	Balanites roxburghii Planch.	Simarubaceae	T	Fr	Dried fruit pulp eaten raw
31	Borassus flabellifer L.	Arecaceae	T	Fr	Fruit flesh eaten during thirsty
32	Butea monosperma Kuntze	Fabaceae	T	Lf	Leaves used to prepare Plates, Yellow dye
33	Bridelia retusa (L.) A.Juss	Euphorbiaceae	T	Lf	To prevent pregnancy
34	Cajanus cajan (L.) Mill.	Fabaceae	S	Lf	Young leaves paste slightly heated and applied on cuts & wounds
35	Calotropis gigantea (L.) W.T.Aiton	Asclepidaceae	S	Lt	Apply directly on skin to cure wounds
36	Calotropis procera (L.) W.T.Aiton	Apocynaceae	S	Rt, Lf	Leaves are useful to treat paralysis, The roots useful in gastric secretions
37	Canthium parviflorum Lam.	Rubiaceae	T	Fr	Edible
38	Centella asiatica (L.) Urb.	Apiaceae	H	Lf	To reduce anxiety
39	Capparis zeylanica L.	Capparidaceae	T	Lf, FR	Used as vegetable

		e			
40	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	C	Fr	Used for ear ache
41	<i>Carica papaya</i> L.	Caricaceae	T	Lf, Br	Leaf & bracts of younger plants is applied on ringworm infected area
42	<i>Carissa carandas</i> L.	Apiaceae	S	Fr	Ripe fruits are eaten raw, also made into pickle
43	<i>Cassia auriculata</i> L.	Fabaceae	S	Lf, Fl	Fodder, Yellow dye
44	<i>Cassia fistula</i> L.	Fabaceae	T	Lf	Fodder
45	<i>Cassia tora</i> L.	Fabaceae	S	Wp, Sd	Fodder, Blue or Red dye
46	<i>Catunaregam spinosa</i> (Thunb.) Tirveng.	Rubiaceae	T	Fr	Fruit is edible
47	<i>Celocia argentia</i> L.	Amaranthaceae	H	Lf	Older leaves paste is applied on ringworm infected area
48	<i>Citrus lemon</i> (L.) Burm.f.	Rutaceae	T	Fr	Oil extract from fruit pulp mixed with camphor to treat skin diseases.
49	<i>Cleome viscosa</i> L.	Cleomaceae	H	Lf	Used for malarial fever
50	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	C	Fr	Used as curry
51	<i>Cocculus hirsutus</i> (L.) W. Theob.	Menispermaceae	C	Lf	Vegetable
52	<i>Cocos nucifera</i> L.	Arecaceae	T	Lf	The midrib is separated to prepare broom
53	<i>Cucumis trigonus</i> Roxb.	Cucurbitaceae	C	Fr	Vegetable
54	<i>Cymbopogon citratus</i> (hort. ex DC.) Stapf	Poaceae	H	Lf	Leaves were boiled to make green tea
55	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	H	Wp	Fodder
56	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Poaceae	H	Wp	Fodder
57	<i>Dalbergia sisso</i> Roxb.	Fabaceae	T	St	Used to make furniture
58	<i>Datura metel</i> L.	Solanaceae	S	Sd	Paste is mixed with oil to apply on wounds
59	<i>Digera muricata</i> Mart.	Amaranthaceae	H	Lf	Vegetable
60	<i>Echinochloa crus-galli</i> L.	Poaceae	H	Wp	Fodder
61	<i>Eucalyptus globulus</i> Labill.	Myrtaceae	T	L	Oil is extracted to use for headache

62	<i>Euphorbia tirucalli</i> L.	Euphorbiaceae	S	Lf	Fresh latex is applied on eczema-affected area. Leaves decoction applied on ringworm affected area.
63	<i>Euphorbia hirta</i> L.	Euphorbiaceae	H	Fl	Flower buds are used to treat toothache
64	<i>Ficus benghalensis</i> L.	Moraceae	T	Lf	Used to construct mantapa during marriages
65	<i>Ficus glomerata</i> Roxb.	Moraceae	T	Fr	Ripe fruits are eaten raw
66	<i>Ficus racemosa</i> L.	Moraceae	T	Lf	Leaves used as fodder for livestock
67	<i>Gossypium herbaceum</i> Linn.	Malvaceae	S	Fl,Fr, Lf	Cotton is used to manufacture bed, Fodder, Yellow die
68	<i>Helicteris isora</i> L.	Sterculiaceae	T	Fr	Tied to cradle, to inhale by newborn baby to avoid constipation
69	<i>Hemidesmus indicus</i> (L.) R.Br.	Asclepiadaceae	C	Rt	Root extract reduces temperature
70	<i>Ipomoea batatas</i> (L.) Lam.	Convolvulaceae	C	Rt	Roots are boiled before eating
71	<i>Lantana camara</i> Linn.	Verbinaceae	S	Fr	Edible fruit
72	<i>Lawsonia inermis</i> Linn.	Lythraceae	T	Lf	Red dye, Leaves paste is used to hair colouring
73	<i>Lactuca virosa</i> L.	Asteraceae	H	Lf	Vegetable
74	<i>Leucaena leucocephala</i> (L.) de Wit	Fabaceae	T	Lf, Fr	Fodder
75	<i>Limonia acidissima</i> L.	Rutaceae	T	Fr	Flesh of ripe fruits are eaten
76	<i>Mangifera indica</i> L.	Anacardiaceae	T	Fr	Yellow dye, Ripe fruit eaten raw, unripe fruit used to prepare pickles
77	<i>Melia dubia</i> Cav.	Meliaceae	T	St	Used in making kinhal toys
78	<i>Merremia gangetica</i> (L.) Cuf.	Convolvulaceae	C	Lf	Leaf juice used to treat migraine, eardrop to relieve ulcer
79	<i>Momordica cymbalaria</i> Hook.f.	Cucurbitaceae	C	Fr	Vegetable
80	<i>Moringa oleifera</i> Lam.	Moringaceae	T	Lf,Fr,Fl, Wd	Blue dye, Cooked and eaten as vegetable
81	<i>Mukia maderaspatana</i> (L.) M. Roem.	Cucurbitaceae	C	Fr	To treat cough, dental pain, burning sensation
82	<i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	T	Lf	Leaves were boiled in coconut oil & applied to hairs to increase its

					growth, Leaves used as curry.
83	<i>Musa paradisiaca</i> L.	Musaceae	H	Fr, Lf, St	Fruit eaten raw, Leaves used as plates, stem used to make rope, Eaten to overcome constipation
84	<i>Opuntia dillenii</i> Haw.	Cactaceae	H	Fr,	Fruit pulp is edible. Red Dye
85	<i>Oxalis corniculata</i> L.	Oxalidaceae	H	Wp	Fodder to feed cattle to increase milk
86	<i>Passiflora foetida</i> L.	Passifloraceae	C	Fr	Ripe fruits are eaten directly.
87	<i>Pontederia crassipes</i> Mart.	Pontederiaceae	H	Lf	Used to make baskets
88	<i>Piper</i> beetle	Piperaceae	C	Lf	Leaves enhances digestion
89	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Fabaceae	T	Fr	Ripe fruits are eaten directly.
90	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	T	Fr	Powder is mixed in coconut oil to applied for hair growth. black grey & brown dye, Fruits are edible.
91	<i>Physalis minima</i> L.	Solanaceae	S	Fr	Edible
92	<i>Plectranthus amboinicus</i> (Lour.) Spreng.	Lamiaceae	H	Lf	Leaves are chewed to treat cough
93	<i>Prosopis cineraria</i> (L.) Druce	Fabaceae	T	St	Fodder, firewood
94	<i>Rauvolfia serpentina</i> (L) Benth. ex Kurz	Apocynaceae	S	R	Used to treat snake bite
95	<i>Ricinus communis</i> L.	Euphorbiaceae	S	Fr	Oil is extracted to use for the growth of hair
96	<i>Santalum album</i> L.	Santalaceae	T	Br, St	Oil is extracted to use as perfume, timber used in making furnitures, Paste directly used for skin
97	<i>Sapindus emarginatus</i> Vahl.	Sapindaceae	T	Sd	Seeds are soaked overnight in water in the morning water is used to clean hairs
98	<i>Solanum nigrum</i> L.	Solanaceae	S	Fr	Edible
99	<i>Spinacia oleracea</i> L. (Palak)	Amaranthaceae	H	Lf	Vegetable
100	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	T	Fr	Fruits controls diabeties. Ripe fruits are eaten directly.
101	<i>Tamarindus indica</i> L.	Fabaceae	T	Fr, Sd	Fruit eaten raw & seeds are boiled or roasted before eating
102	<i>Tephrosia purpurea</i> (L.) Pers.	Fabaceae	S	Lf	Fresh leaf paste is applied on Itching affected area daily once till

					it cures
10 3	Terminalia arjuna (Roxb. ex DC.) Wight & Arn.	Combratace ae	T	St	Timber in making agricultural implements, house construction and furniture's
10 4	Terminalia catappa L.	Combretace ae	T	Sd	Seeds are eaten as substitute of almond
10 5	Tinospora cordifolia (Willd.) Miers Hook.f. & Thomson	Menisperma ceae	C	Lf	Leaves are chewed to control heart diseases
10 6	Tribulus terrestris L.	Zygophylla ceae	H	Lf, Arial part,	Leaf paste used to treat kidney stones, Whole plant juice is applied on Psoriasis
10 7	Tridax procumbens Linn.	Asteraceae	H	Arial part	Leaf paste is applied on cuts and wounds
10 8	Typha angustata Bory & Chaub.	Typhaceae	H	Wp	To construct huts
10 9	Wrightia tinctoria B.Heyne ex Roth	Apocynacea e	T	St	Used in making kinhal toys
11 0	Ziziphus maurtiana Lamk.	Rhamnacea e	S	Fr	Fruit eaten raw, Red- pink dye
11 1	Ziziphus nummularia (Burm.f.) Wight & Arn	Rhamnacea e	S	Fr	Edible fruit
11 2	Zyzyphus oenoplia (L.) Mill.	Rhamnacea e	T	Fr	Fruit is edible

**Note:** Habit: H-Herb, S-Shrub, T-Tree, C-Climber. Parts used: Fr- Fruit, Fl – Flower, St-Stem, Wp- Whole plant,  
Ap – Arial part, Sd- Seed.