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Documentation of NTFPs and medicinal plants available in Dhamtari forest area

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Abstract

Study entitled "Documentation of NTFPs and medicinal plants available in Dhamtari forest area." The study was carried out in three study sites Dugli, Nagri and Sihawa range Dhamtari, district of Chhattisgarh. The study reveals that the total 52 NTFPs species were documented belongs to 26 trees, 10 shrubs, 7 herbs and 9 climber species. A variety of NTFPs viz, seeds, leaves used for plate making, Tans and Dyes, Gum and Resin, edible products, Oil yielding, Bamboo, Fibre, and Broom making, Medicinal plants and Biocides (fungicidal, insecticidal and nematicidal) were identified.

Keywords: NTFPs, medicinal plants, Gum, Resin, Biocides

Introduction

The forests provide timber and non timber forest products besides invaluable environmental services. Traditionally Non Timber Forest Products (NTFPs) refer to all biological materials other than timber extracted from natural forests for human and animal use and have both consumptive and exchange value. Globally NTFP / NWFP are defined as "forest products consisting of goods of biological origin other than wood, derived from forest, other wood land and trees outside forests". Different terms like secondary, minor or non-timber forest products (NTFP) are also being used by governments, institutions and academics.

NWFP may be gathered from the wild, or produced in forest plantations, agro-forestry systems and from trees outside forests. Examples of NWFP include products used as food and additives (edible nuts, mushrooms, fruits, herbs, spices and condiments, aromatic plants, gums), fibres (used in construction, furniture, clothing or utensils), resins, plant and animal products used for medicinal, cosmetic or cultural purposes.

In Bastar area of Chhattisgarh, about 75 % of forest dependent people supplement their food by tubers, flowers and fruits all round the year. In a household based survey at Midnapur forests, it was observed that of the 122 uses of plants or their parts listed by the people, the maximum were for food (44), followed by fuel (39) and medicinal purposes (18). NTFPs are estimated to generate 70% of all employment in the Indian forestry sector. Commercial NTFPs alone are estimated to generate Rs.3 billion annually.

Materials and Methods

The study three sites were selected and two villages in each site are selected in Dhamtari district of Chhattisgarh and data was collected on winter and summer season when the NTFPs are extracted from forests and sold in the market. The data was collected on the basis of questionnaire developed for this experiment regarding, processing of the harvested NTFP before storage and marketing of the produce. Out of total tribal families residing in each selected village, a representative sample of 20 percent respondents were selected by purposive sample. Conservation practices of tribal's was also observed and recorded during the study.

Results and Discussion

The villagers mainly depend on some NTFPs species for their livelihood and subsistence. Among all these Medicinal and NTFPs species enlisted and identified some are the source of their income such as *Madhuca latifolia* (Mhau) flower, *Bauhinia vahlii* (Mahul) leaves, *Diospyros melanoxylon* (Tendu) leaves. There are 52 NTFPs were identified and documented during present investigation. The identified 52 NTFPs species belongs to 26 trees, 10 shrubs, 7 herbs and 9 climber species. A variety of NTFPs viz. seeds, leaves used for plate making, Tans and Dyes, Gum and Resin, edible products, Oil yielding, Bamboo, Fibre, Thatching, Broom making, Medicinal plants, Biocides (fungicidal, insecticidal and nematicidal) and Fish poison were identified. The forest of the study area has abundant different NTFPs plants species, which are used by villagers for various purpose viz. foods, medicine, tans & dyes, oil, fuel,

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fodder, construction etc. Among identified 52 plants species 49 species came under medicinal plant. About 12 plant species was edible. About 8 Gum yielding plant species was identified. 7 Plate, Broom and Rope making plant species was identified. 7 fire wood plant species was identified. 8 Biocides (fungicidal, insecticidal and nematicidal) plant species was identified. The *Diospyros melanoxylon* (Tendu) leaves used for Bidi making is playing a significant role in the income of

the people residing in study area. The Tans and Dyes yielding 10 plant species were identified. The oil yielding 6 tree species were identified. The 2 lac yielding plant species was identified. The Kaliyari (*Gloriosa superba*) Colchicine, obtained from all parts of the plant but particularly the seeds, inhibits cell division and is used in plant breeding to produce polyploidy. Saja (*Terminalia tomentosa*) species source tree for Cocoon (kosa) production.

Table 1: List the Medicinal and NTFPs Species in Study Area of Dhamtari (C.G.).**Trees**

S.no.	Local Name	Botanical Name	Status	NTFPs Use	Medicinal Use	Other Use
1	Char	<i>Buchanania lanzan</i>	Tree	Seed, bark and Gum.	Leprosy, acrid, astringent, cooling, depurative, constipating, diarrhoea, skin diseases, coughs and asthma.	firewood and for making charcoal
2	Sal	<i>Shorea robusta</i>	Tree	Seed, leaves and Gum.	Treatment of dysentery, gonorrhoea, boils and toothaches.	The leaves are widely used for making plates, cups and for wrapping.
3	Mango	<i>Mangifera indica</i>	Tree	Seed, stem. Flower, fruit, bark and roots.	Angina, asthma, coughs, diabetes. skin irritations, obstinate diarrhoea, bleeding piles, treating dysentery, treat scorpion stings, astringent, homeostatic, antirheumatic, remedy stomach-ache, diuretic, aphrodisiac, antiscorbutic and antidysenteric.	The wood is suitable for light construction, turnery, flooring, interior panelling, boxes, crates, pallets and plywood manufacture. Corewood used for decorative veneer production.
4	Anola	<i>Emblica officinalis</i>	Tree	Fruit, Bark, root, stem and leaves. Leaves may yield 22 - 28% tannin.	Fruits are traditionally used as an expectorant, antipyretic, diuretic, antidiarrhoeal and antiscorbutic. The sour fruits are one of the ingredients of 'triphal'.	Commonly used to make jams, jellies, tarts, chutneys etc.
5	Bija	<i>Pterocarpus marsupium</i>	Tree	Leaves and bark. The tree yields a red gum known as 'kino'.	It is used in the treatment of chronic diarrhoea and the irritation caused by gastric infection and colitis. it makes a good mouthwash and gargle.	Wood used for door and window frames, posts, agricultural implements, boat building, carts, railway carriages and railway ties etc. Source of tannins and for dyeing.
6	Tendu	<i>Diospyros melanoxylon</i>	Tree	Fruits and leaves.	Mental disorders, nervous breakdowns diarrhoea palpitations of the heart, stringent effect, urinary, skin and blood diseases.	The leaves used for make bidi cigarettes. Wood used for building, shoulder poles, mine props and shafts of carriages. Fuel wood calorific value of the sapwood is 4957 kcal/kg and of the heartwood, 5030 kcal/kg.
7	Mahua	<i>Madhuca latifolia</i>	Tree	Flower and Whole plant	Anti-bacterial, carpentry work, pain killer, wine/liquor, worship.	Timber wood.
8	Haldu	<i>Adina cordifolia</i>	Tree	The bark contains 7 - 9% tannins. Root.	The bark is antiseptic and febrifuge. The juice of the plant is applied externally to kill worms in sores. Roots used for treatment of diarrhoea, dysentery and Pain killer.	Pulp and paper, also used for construction, window frames, furniture, bobbins, boxes, piano keys, rulers etc.
9	Dhawra	<i>Anogeissus latifolia</i>	Tree	Leaves and bark. The gum that exudes from the trunk, known as 'ghatti gum'.	The plant is used in treating snake bites and scorpion stings in India.	Calico printing, dyes, binding agent in pharmaceuticals. and wood for timber. Gum has been used in sweetmeats and as an emulsifier in the food industry.
10	Jamun	<i>Syzygium cumini</i>		Leaves fruits and bark.	Ailments, cough, diabetes, dysentery, inflammation and ringworm.	Timber wood.
11	Saja	<i>Terminalia tomentosa</i>	Tree	Bark and Gum.	Blood disorder, Burns, dandruff, antioxidant, antiseptic, astringent.	Source tree for Cocoon (kosa) production.
12	Moyan	<i>Lamnea coromandelica</i>	Tree	Bark and leaves. A soluble resin, called 'Jingan gum' is obtained from the stems.	Bruises, Bursitis, heart disease, Muscle Sprains, neuralgia, analgesic, anti-inflammatory.	Wood used for spear shafts, scabbards, wheel-spokes, oil presses, grain pounders etc. Gum used for calico printing.
13	Bhelwa	<i>Semecarpus anacardium</i>	Tree	Seed, fruit, gum and oil.	Aphrodisiac, digestive, stimulant, bronchitis, dysentery, fever, asthma, haemorrhoids, astringent, sterility in women, headaches, skin diseases and scabies.	Floor dressing; as additive substances to lacquers, dyes and insulating material; in the plastics industry; for regenerating rubber materials; and to protect wood from white ants.

14	Teak	<i>Tectona grandis</i>	Tree	Whole plant	Burning sensation, arthritis, kidney, skin disease, diabetes and ulcer.	Timber wood.
15	Neem	<i>Azadirachta indica</i>	Tree	Seed and leaves.	Heart problems, eczema, arthritis, white discharge, ear and tooth ache, malaria, anti-toxic and anti-microbial, tooth washing, furniture making, chicken pox, blood purification.	Timber wood. Seed and leaves used for Pest and disease control and cosmetics.
16	Kusum	<i>Schleichera oleosa</i>	Tree	Seed, Bark and lac.	Wounds and ulcers of cattle. Leprotic ruptures, skin inflammations, ulcers and malaria.	House construction, ship building and musical instruments.
17	Senha	<i>Lagerstroemia parviflora</i>	Tree	Bark and gum. Black dye.	None known	Wood used for making furniture, interior joinery, boatbuilding, general construction, parquet flooring and panelling.
18	Harra	<i>Terminalia chebula</i>	Tree	Flower, fruit and bark.	Digestion, skin problem prophylaxis of CMV disease in immuno-compromised patients, laxative, stomachic, expectorant, haemostatic, tonic, and alterative, nervous complaints, diarrhoea, dysentery, intestinal worms, haemorrhoids, rectal prolapse, abnormal uterine bleeding and inflammation, vaginal discharge, involuntary ejaculation, coughs and asthma. The sour fruits are a major ingredient of 'triphala'.	These are rich in tannins and are used to make dyes and ink. It is used as construction timber and for furniture, carts and implements. In ayurveda it is used for various preparation.
19	Behra	<i>Terminalia bellirica</i>	Tree	Bark, fruit, seed, whole plant.	Ascariasis, gray hair, hoarseness, weak eyesight, anemia, asthma, piles, leprosy, liver disease, diarrhea, hair fall and dipsia.	Natural dyes.
20	Amaltas	<i>Cassia fistula</i>	Tree	Flower, fruit, Bark, stem, root, Leaves and seed.	Malaria, blood poisoning, anthrax, diabetes and dysentery Ring worm, wound, fever, leprosy, cough.	Tanning and dyeing. Wood used for buildings, carts, fence posts, agricultural implements etc.
21	Kachanar	<i>Bauhinia variegata</i>	Tree	Root, leaves, flower, buds, gum, seeds and flower.	Amoebic dysentery, diarrhoea and other stomach disorders, cuts and wounds, skin diseases, scrofula and ulcers, piles, dysentery, worms, dyspepsia	The bark is a source of tannins. It is used for dyeing in various shades of brown. Wood used making household and agricultural implements. Fuel wood The calorific value is 4 800 kcal/kg.
22	Imli	<i>Tamarindus indica</i>	Tree	Flower, fruit, root, bark, stem, seed and leaves.	Relieves sores, ulcers, boils rashes, throat infection, cough, fever, intestinal worms, conjunctivitis, swelling, relieve pain, cure fevers, control gastric acid, treat scurvy, dysentery and diarrhoea. The plant contains pyrazines and thiazoles. The seed contains polyoses. The bark yields proanthocyanidin and hordenine	Sizing textiles, seed oil - is suitable for making paints and varnishes and for burning in lamps, The bark tannins can be used in ink or for fixing dyes. Wood used for general carpentry, sugar mills, wheels, hubs, wooden utensils, agricultural tools, mortars, boat planks, toys, panels and furniture.
23	Bel	<i>Aegle marmelos</i>	Tree	Whole plant, bark, fruits, leaves, twigs and root.	Diarrhoea, dysentery, haemorrhoids aphrodisiac laxative, diuretic astringency and peptic ulcers.	Fruit rind is used in making perfumes and soap unripe seeds is used as an adhesive and household glue.
24	Kumbhi	<i>Careya arborea</i>	Tree	Flower, fruit, bark, juice, seed and calyx.	Body swellings astringent, mucilaginous coughs and colds embrocation.	Used for general construction (house posts, planking), furniture and cabinet work, carts, mouldings, turnery, piling and agricultural implements.
25	Kakai	<i>Flacourtia indica</i>	Tree	Bark, leaves and root.	Leaves used for asthma, pain relief, gynaecological complaints and as an anthelmintic, and treatment for hydrocele, pneumonia, intestinal worms and snake bites. bark is used as a gargle for hoarseness.	Agricultural implements such as ploughs, posts, building poles, rough beams, walking sticks and the manufacture of turnery articles. Wood used for fuel and for making charcoal.
26	Karra	<i>Cleistanthus collinus</i>	Tree	Leaves, stem and bark	Washing agent for clearing septic wound, cure fungal diseases.	Fuel wood.

Shrubs

1.	Chhind	<i>Phoenix acaulis</i>	Shrubs	Leaves, fruit and juice.	None known	The leaves are used to make mats, ropes, umbrellas, and fences as well as for thatching roofs.
2.	Chikti	<i>Triumfetta rhomboidea</i>	Shrubs	Flower, fruit, root, bark, and leaves.	Internal ulcerations, gonorrhoea, antihypertensive, astringent, diuretic, mucilaginous, emollient, diarrhoea, dysentery, internal haemorrhages, and leprosy	A soft, glossy fibre is obtained from the bark. The fibre is rather similar to Jute (<i>Corchorus</i> spp).
3.	Ber	<i>Ziziphus mauritiana</i>	Shrubs	Leaves, fruits and bark.	Indigestion, Diabetes, diarrhea, urinary disorders.	The wood is used for general construction, furniture and cabinet work, tool handles, agricultural implements, tent pegs, golf clubs, gun stocks, sandals, yokes, harrows, toys, turnery, household utensils, bowling pins, baseball bats, chisels and packaging. It is also suitable for the production of veneer and plywood.
4.	Korea	<i>Holarrhena antidysenterica</i>	Shrubs	Seed, leaves, bark and juice.	Dropsy, skin disorders, psoriasis, nonspecific dermatitis fevers, diarrhoea dysentery and intestinal worms.	None known
5.	Lantana	<i>Lantana camara</i>	Shrubs	Seed, flower, fruit, bark and root	Influenza, cough, mumps, incessant high fever, malaria, cervical lymph node tuberculosis, asthma, toothache, headache, inflammation, gonorrhoea and leucorrhoea. dermatitis, eczema, pruritus, measles and chickenpox rashes etc.	Biocides (fungicidal, insecticidal and nematocidal) firewood fencing, windrows, woodlots or natural bush.
6.	Kurru	<i>Gardenia resinifera</i>	Shrubs	Stem, buds and gum.	Cutaneous diseases.	Insecticide.
7.	Chameli	<i>Jasminum polyanthum</i>	Shrubs	Leaf, root, flower,	Ulcer, headache, mouth disease, impotency, skin disease, ear problem, worm and fever.	Oil cosmetic industry, perfume and soap.
8.	Gotia	<i>Ziziphus xylopyra</i>	Shrubs	Fruit, bark, seed and root.	Diabetes, diarrhoea, digestive, urinary disorders, abscess, acne.	Suitable for the production of veneer and plywood.
9.	Bendracher	<i>Argyreia involucrata</i>	Shrubs	Stem.	Antifungal effect on <i>Aspergillus niger</i> , and it can be used in treating diseases caused by the test organisms.	Fungicide.
10.	Ainthe	<i>Helicterus isora</i>	Shrubs	Bark, root and fruit.	Cures dysentery, stomach pain, expectorant, demulcent, astringent, galactofuge, diarrhoea and a remedy for scabies.	Bark used as cordage for making cots, tying cattle and ploughs. bark fibre is good for making ropes and clothing.

Climber

1.	Mahul	<i>Bauhinia vahlii</i>	Climber	Leaves stem and seed	Demulcent and mucilaginous tonic and aphrodisiac	Ropes, stems are used for matting, basketry and wickerwork. Leaves used as plates, cups, rough tablecloths, umbrellas, cloaks, and rain capes.
2.	Baichandi	<i>Dioscorea hispida</i>	Climber	Tuber	Diabetes	-
3.	Ramdatun	<i>Smilax macrophylla</i>	Climber	Root	Dental abscesses, edema, gingivitis, urinary tract infection. Sexually transmitted diseases.	Rope.
4.	Karukand	<i>Dioscorea bulbifera</i>	Climber	Leaves, tuber and	Fever, diarrhoea, haemorrhoids,	Use as a vegetable.

				roots.	purulent ophthalmia, and for snake-bite.	
5.	Kaliyari	<i>Gloriosa superba</i>	Climber	Leaves, seed, tuber.	Ulcers, leprosy, piles, inflammations, abdominal pains, itching, thirst, bruises, colic, haemorrhoids, cancer, arthritic conditions, swellings of the joints, sprains, dislocations, smallpox, leprosy, eczema, itch, and ringworm. Gums used to treat painful teeth.	Colchicine, obtained from all parts of the plant but particularly the seeds, inhibits cell division and is used in plant breeding to produce polyploidy. strong nematicidal.
6.	Anantmool	<i>Hemidesmus Indicus</i>	Climber	Whole plant	The root is a valuable alterative, blood purifier, demulcent, diaphoretic, diuretic, appetite loss, dyspepsia, fever, skin diseases, syphilis, leucorrhoea, genitourinary diseases, chronic coughs and tonic.	None known
7.	Peng	<i>Celastrus paniculatus</i>	Climber	Seed, leaves, root, stem, bark, wood and fruit.	Beriberi, rheumatism, leprosy, gout, fevers, muscular pains, analgesic, aphrodisiac, diaphoretic, emetic, emmenagogue, stimulant, tonic, tuberculosis and paralysis. Oil enhance the nervous and mental system.	The seed contains 52% oil, and the fruit 30%. It is used as an illuminant in lamps and also for soap making.
8.	Keoti	<i>Ventilago calyculata</i>	Climber	Bark, root and flower	Bodyache, fever leprosy malaria feafness, toothache, dysphasia, itching scabies.	-
9.	Bodal	<i>Cucumis melo agrestis</i>	Climber	Seed, flower, root and fruit.	Expectorant and emetic burns and abrasions antitussive, digestive, febrifuge and vermifug.	-

Herbs

1	Tikhur	<i>Curcuma angustifolia</i>	Herbs	Rhizome.	Demulcent and dislocated bones.	Tikhur barfi.
2	Safed musli	<i>Chlorophytum tuberosum</i>	Herbs	Root.	Tuberculosis, male impotency and tonic.	-
3	Kali musli	<i>Curculigo orchoides</i>	Herbs	Root, juice.	Dysentery, peptic ulcers, piles, gonorrhoea, leucorrhoea, asthma, jaundice, chronic nephritis, diarrhoea, lumbago and headache.	-
4	Kalmegh	<i>Andrographis paniculata</i>	Herbs	Whole plants	Joint pain, jaundice, head ache, malaria, anti helmenthetic, febrifuge, fever, malaria and body pain.	-
5	Charota	<i>Cassia tora</i>	Herbs	Seed, leaves	Arthritis leprosy, ringworm, itching and psoriasis and also for snakebites.	Cassia tora tea is a herbal, pure, natural and non-polluted green health beverage (coffee-tea), substitute for coffeeand sodas. Natural pesticide.
6	Gengi	<i>Curcuma zedoaria</i>	Herbs	Rhizome	Indigestion, nausea, flatulence, bloating, anti-cancer properties, cervical cancer, bad breath. rhizome is used to clean, cure ulcers, wounds and other skin disorders.	An essential oil obtained from the rhizome is used in perfumery.
7	Satavar	<i>Asparagus racemosus</i>	Herbs	Whole plant	Piles, fever, wound, anti-toxic, weakness, cough, Diarrhoea, headache, asthma, urinary disorder.	The squeezed root is used for washing clothes
8	Dashmul	<i>Daedalacanthus roseus</i>	Herbs	Root	Leucorrhea and is also used to promote fetal growth during pregnancy. The decoction of Dashmularist is available as a medicine for women gaynecological problems.	

Conclusion

It concluded that villagers mainly depend on some NTFPs species for their livelihood and subsistence. Among all these Medicinal and NTFPs species enlisted and identified some are the source of their income such as *Madhuca latifolia* (Mhaau) flower, *Bauhinia vahlii* (Mahul) leaves, *Diospyros melanoxylon* (Tendu) leaves. There are 52 NTFPs were identified and documented during present investigation. The identified 52 NTFPs species belongs to 26 trees, 10 shrubs, 7 herbs and 9 climber species. A variety of NTFPs viz. seeds, leaves used for plate making, Tans and Dyes, Gum and Resin, edible products, Oil yielding, Bamboo, Fiber, Thatching, Broom making, Medicinal plants, Biocides (fungicidal, insecticidal and nematicidal) and Fish poison were identified. The forest of the study area has abundant different NTFPs plants species, which are used by villagers for various purpose viz. foods, medicine, tans & dyes, oil, fuel, fodder, construction etc. Maximum NTFPs species are used for medicinal purpose.

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