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Documentation of non-timber forest products and medicinal plant available in different forest stands of Kondagaon Chhattisgarh

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Abstract

Documentation of Non-Timber Forest Products their Collection, Processing, Value Addition and Sustainable Methods of harvesting have been carried out at different Forest stands of Kondagaon. The study was carried out in three blocks and each block selected three villages namely Keshkal block- Vishrampuri, Bahigaon, Korgaon, Pharsgaon block- Pandeyaatagaon, Patoda, Badedongar, and Kondagaon block- Makdi, Chipawand, Baniyagaon of Kondagaon. The local peoples of these villages mainly dependent on collection of NTFPs & medicinal Plants, Agriculture and Labour work. In this investigation total 89 NTFP species were identified these belongs to 44 tree, 23 shrub, 22 herb, and climber species. As near forest stands they collect so many NTFPs available in different seasons of the year. Various plant parts as per its use discovered, including seeds, leaves used to make plates, tans and colour, gum and resin, edible goods, oil-yielding fiber, thatching materials, broom-making plants, medicinal plants, and biocides.

Keywords: NTFPs, medicinal uses, tree, shrubs, herb and climber, biocides

Introduction

NTFPs are described as "All items for commercial, industrial, or subsistence use obtained from forests and their biomass," by the FAO. Many of the world's poorest people and a sizeable fraction of the less poor receive their products for food, shelter, medicines, fibres, energy, and cultural artefacts from NTFPs. Any goods or services made from wood produced in forests falls under the category of non-timber forest products (NTFPs). Fruits, nuts, vegetables, fish, and gums are a few of them, along with medicinal plants, resins, essences, and a range of barks and fibres including bamboo, rattan, and a variety of other palm and grasses. NTFPs have gained attention for their ability to be produced as commodities for rural incomes and markets, as an expression of traditional knowledge or as a means of sustaining rural household needs, as an essential component of sustainable forest management and conservation strategies, and for their significant contribution to improving dietary diversity and providing nourishing food, particularly for peoples living close to forests. Many NTFPs may be used in traditional forest communities for subsistence, while others may be the primary or sole source of income. Some NTFPs are used in rituals as totems, incense, and other objects, and have important cultural value. The health and wellbeing of the community are aided by others that have significant medicinal value. Non-timber forest products (NTFPs) are those that come from forests other than those that provide timber (Ahenkan and Boon, 2011) ^[1]. Harvesting valuable non-timber forest products (NTFPs) has been viewed as an environmentally sound alternative to the non-degrading commercial exploitation of natural forests because it would benefit the local population while preserving biodiversity and ecosystem function (Peters, Gentry, and Mendelshon 1989; Ruiz-Pérez & Arnold 1996) ^[3].

The Chhattisgarh state is one of the biodiversity-rich forest regions of India, and little information is available on the NTFPs of this region. The Food Processing Policy 2012-2019 has been modified by the Division of Commerce and Industries of the Government of Chhattisgarh, which now includes a unique package, conspire for projects costing more than Rs. 500 crore. The Tribal population, that made up the largest demographic group, owns 78.22 lakhs of land that is close to a forest. Although NTFPs can be converted into a variety of value-added products, primary collectors typically sell it in its raw state. The CGMFPFED has a plan to distribute 80% of the profits from NTFP trading as incentive wages to tendu leaf collectors, 15% for collection, sale, and warehousing, and the remaining 5%.

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The Kondagaon area is close to very dense forests and a wealth of non-timber forest products (NTFPs). The district is giving the state a sizable economic contribution as a result of primary possessing of these NTFPs. The commercially important NTFPs like Char, Imlı, Baıbidang, Mango, Peng Seeds, Seeds, Amla, Charota Seeds, Hara, Mahua, Tora, Harra, Bamboo, Boda, Mushroom, Dhawai Phool, Bhelwa Seeds, Sal Seed, Mahul, Tikhur, various types of tubers, so many medicinal plants, honey and tussar cocoon etc.

Material Methods

The experiment was conducted at Kondagaon district in three blocks i.e., Keshkal block which consist of Vishrampuri, Korgaon, Bahıgaon villages and Pharasgaon block consist of Pandeyaatagaon, Patoda and Badedongar villages, Kondagaon block consist of Makdi, Chipawand, Baniyagaon villages of this district to cover the maximum heterogeneity of various species and represent the Kondagaon forest as a whole. When the NTFPs are collected from forests and sold in the local market as well forest department also under Van Dhan Samiti. The primary data was collected on the basis of questionnaire developed for this experiment regarding, collection methods, drying primary processing of NTFP before storage and marketing of the produce. The data was collected in the month of October 2021- June 2022 winter season and summer season. A representative sample of 20% of respondents were chosen by purposive sampling from among all the tribal household's resident in each chosen village. The tribal respondents have been incorporated in this study for collection of data. The data was collected computed and analysed for further statistical analysis to come to the conclusion.

Result and Discussion

The villagers mainly depend on some NTFPs species for their livelihood and subsistence. Among the medicinal and non-timber forest products species listed and identified like *Madhuca latifolia* (Mahua) flower, *Bauhinia vahlii* (Mahul) leaves, *Tamarindus indica* (Imlı) fruit, *Mangifera indica* (fruit), *Phoenix acaulis* (Chhind), *Caryota urens* (Salfı) juice, and *Thysanolaena maxima* were the sources (Phool bahari). Total 89 major commercial important species of NTFPs recorded during the investigation. In this inquiry, 89 NTFP species which were belongs to 44 trees, 23 shrubs, and 22 herb climber species worked out. There are many different NTFPs, including seeds, leaves used to make plates, tans and dyes, gum and resin, edible products, oil-yielding plants, fibre, thatching materials, broom-making plants, medicinal plants, biocides (fungicidal, insecticidal, and nematocidal), and fish poisons like *Casearia graveolens* (Girchi), *Madhuca indica* (Mahua), *Cleistanthus collinus* (Karra). The documentation of local collection methods, primary processing, any value addition different variety of NTFP plant species locals are used for their own consumption and excess sold to the market, including food, medicine, tannins and

dyes, oil, fuel, fodder, and construction material. There were 36 edible plant species and about 11 species of plants that produce gum are well documented in this investigation. Five species of plants that produce plates, brooms, and rope were also recorded. There are 7 known species of firewood plants. There are 6 plant species that are biocides (fungicidal, insecticidal, and nematocidal). 14 plant species that generated tans and dyes were also discovered and documented. There are five species of trees known to produce oil. There were also found three lac rearing host tree species. In this region *Shorea robusta* (Sal), *Terminalia tomentosa* (Saja), and *Schleichera oleosa* (Kusum) are used as host trees for the production of cocoons (Kosa). The Tree, Shrubs and herbs of the various study sites of the Kondagaon were observed recorded and documented regarding their importance and uses as per the local inhabitant's Gond, Muriya, Halba & Abujhmar tribes systematic information recorded for computation and analysis the results are mentioned in above tables. The data collected as per the questionnaire developed for this study. Singh and Bharti (2015) ^[9] conducted similar research in several parts of the CG Raigarh district (India). They identified the many plant components that people utilise for various purposes, such as medicine, food, fodder, furniture, fibre, cosmetics, etc., and they documented 89 plant species' ethnobotanical uses. The findings of this study are consistent with what the worker in question reported, supporting the pattern of documenting techniques. The diversity, distribution, and usage patterns of edible non-timber forest products (NTFPs) among the tribes of Bundu block in Ranchi district of Jharkhand, India, reported the similar study also carried out by Islam and Quli (2016) ^[11]. The findings show that 59 edible NTFPs from 39 genera and 45 species under 29 families are consumed by the study population. Ahirwar (2015) ^[2] observed that a total of 41 plant species from 26 families and 37 genera were discovered. In the Boridand forest, district Korea, Chhattisgarh, a field survey was carried out at three separate research locations. Similar study carried out by Dhurwe *et al.* (2018) ^[7], reported that total 112 NTFPs belongs to 47 trees, 29 shrubs, 12 herbs, 22 climbers this data was conducted at two different Block under various study sites in Narayanpur District Chhattisgarh. The no. of NTFPs/ Medicinal plants not similarly founds because it is found as per climatic condition species composition of the forest stands etc. The quality of the NTFPs also varied as per change in climatic condition soil type and as per ecological nich of the various families, species and genera. The study site we worked out that the livelihood of tribes contribution of income 23% money get from NTFPs component however agriculture they get 41% of income and rest the income they get from different component. The source of income as per various component we may increase the income from NTFPs component by adopting the sustainable harvesting methods, post harvest, processing, value addition and through smart packaging of the NTFP produce/ products.

Table 1: List of the medicinal and NTFPs Species collected in the study area of Kondagaon (C.G.)

Tree Species documented at various study site of Kondagaon (C.G.)

S.N	Local Name	Botanical name	Status	NTFPs Use	Medicinal Use	Other Use
1.	Khair	<i>Acacia catechu</i>	Tree	Kattha, soft wood, leaves, bronzy brown calico dye	Gastric problem, bronchial asthma, cough, leucorrhoea and leprosy	Kattha is using on paan leaves, rice pestles. Tool handles, sugarcane crushers, bows and spears.
2.	Haldu	<i>Adina cardifolia</i>	Tree	The bark contains 7 - 9% tannins. Root.	Antiseptic, febrifuge, pain reliever, diarrhoea, and dysentery; also kills worms in wounds.	Construction, window frames, furniture, bobbins, boxes, piano keys, and rulers are further uses for pulp and paper.
3.	Series	<i>Albizia procera</i>	Tree	Leaves, bark	Rheumatism and stomach aches and are mixed with salt as medicine given to buffaloes	Fast growing agroforestry tree for fodder, fuel and timber. The bark is rich in tannins and is pounded to make a fish poison. It is used locally for construction, furniture, cart and carriages and makes a high-calorie fuelwood.
4.	Sheetaphal	<i>Annona squamosa</i>	Tree	Edible fruit, Leaves, shoots, bark and roots	Diabetes, hair tonic, rheumatism, ulcer, wound, dysentery, assistance for digestion, and diarrhoea.	The tree is a good source of horticultural and agricultural pesticides, as well as fuel.
5.	Dhawda	<i>Anogeissess latifolia</i>	Tree	Leaves, bark, Gum (ghatti-gum), resin and tannin.	Treating snake bites and scorpion Stings	Used in calico-printing and as a polysaccharide binding agent in food, drugs and skin-care products. Tussar silkworm are reared on Dhawda trees. Axe handles, poles, cart axles, boat- building purpose.
6.	Neem	<i>Azadirachta indica</i>	Tree	Seed and leaves	Heart issues, eczema, arthritis, white discharge, ear and tooth pain, malaria, anti-toxic, anti-microbial, tooth brushing, manufacturing furniture, chicken pox, and blood purification.	Seed and leaves are utilised in cosmetics, pest and disease management and timber wood.
7.	Kachnar	<i>Bauhinia variegata</i>	Tree	Leaves, flower	Used in folk medicine for treating gastric complaints	The reddish heartwood is durable and is used for making farming tools
8.	Salai	<i>Boswellia serrata</i>	Tree	Wood, fruit	In ayurveda to treat osteoarthritis, fibrositis, asthma and as a general health support.	The resin is also widely used as a household fumigant and fragrance, timber used for packing case, toys matches and paper pulp
9.	Kashee	<i>Bridelia retusa</i>	Tree	Bark, fruit, leaves and tannins.	Hypoglycaemic, hypotensive, cuts and wounds	It can be seasoned without much difficulty, takes a good polish and is used by rural folk to make farming implements.
10.	Char	<i>Buchanania lanzan</i>	Tree	Seed, Gum and bark is used in tanning	Leprosy chewing gum Astringent, cooling, depurative, constipating, and diarrhea-causing roots. Fruits and leaves for asthma and skin conditions, respectively.	Similar to almonds, roasted char nuts are used as a sweetener in kheer and other desserts made with firewood and charcoal.
11.	Palas	<i>Butea monosperma</i>	Tree	Young roots, rope	It is a potent astringent that is used to treat wounds and diarrhoea. The seeds have antibacterial, antifungal, and anthelmintic properties. The flowers are helpful for treating liver conditions. The seeds have anthelmintic properties.	Creating paper, tanning leather, making sandals, cordage, caulking boat seams, and using dye, tannin, and oil.
12.	Kumbhi	<i>Careya arborea</i>	Tree	Flower, fruit, bark, juice, and calyx	Snakebite and swelling, cure cough and cold.	Used for general construction (house posts, planking), furniture and cabinet work, carts, mouldings, turnery, piling and agricultural implements.
13.	Girchi	<i>Casearia graveolens</i>	Tree	Bark of the tree	Enhances blood sugar, safeguards the heart, protects the liver, inhibits weight growth, and is a kidney tonic.	Girchi fruit is pounded and dropped into dammed streams as a means to stun and possibly poison fish.
14.	Amaltas	<i>Cassia fistula</i>	Tree	Blossom, fruit, Root, leaves, stem, bark, and bark.	Diabetes, diarrhoea, anthrax, malaria, and blood poisoning Leprosy, ringworm, fever, wound, and cough.	Both dying and tanning. Timber used for construction, agricultural tools, carts, and fence posts.
15.	Bhirra	<i>Chloroxylon swietenia</i>	Tree	Leaves, bark	Arthritis and rheumatism	Bhirra leaves contain an acrid juice which keep the tree immune from browsing animals. Though timber is also softly fragrant and pale timber which is used for cabinet-making, inlay work, veneers and the backs of brushes.
16.	Karra	<i>Cleistanthus collinus</i>	Tree	Fertilizer, fodder	Chewing the stem bark has a tonic effect.	Insecticide and fish poison.
17.	Sisham	<i>Dalbergia latifolia</i>	Tree	Tannins in the bark	Diarrhoea, worms, indigestion, and leprosy	Furniture, panelling, and ornamental products
18.	Dhoban	<i>Dalbergia paniculata</i>	Tree	The bark is astringent	The sweet blackish pulp of the seedpod is used as a mild laxative.	Dhoban is a good source of fuel wood. A high polish with a satiny lustre is required.

						Construction of houses uses the timber.
19.	Tendu	<i>Diospyros melanoxylon</i>	Tree	Fruits, leaves, bark	Nervous disorder, palpitations, coughs as well as diseases of the skin, blood and urinary system.	In India, bidi cigarettes are made by wrapping the tobacco in the leaves. Because it produces showers of sparks when burned, it is rarely utilized as fuelwood.
20.	Burgad	<i>Ficus bengalensis</i>	Tree	Leaf, root, and latex	Dysentery, boils, ulcers, seizures, fever, headache, hydro cycle, kidney illness, and leucorrhoea are some of the symptoms.	Tannins, short-term binding solutions, latex, cart yokes, household items, and well liners.
21.	Gular	<i>Ficus glomerata</i>	Tree	Fruit, Bark and leaf, latex, edible fruit	Fever, which eases swelling, pain, and other symptoms, boils, pimples, freckles, mouth ulcers, and oral infections Skin burns, haemoptysis, haematuria, and menorrhagia	Leafy vegetables are consumed pickled. The powder made from roasted fruits can be used to make fruit crates, packing cases, mouldings, laundry tubs, valuable breakfast foods, and remedies for latex, tannin, and dye entrance.
22.	Pipal	<i>Ficus religiosa</i>	Tree	Leaf, bark, edible fruit, root and gum, tannin	Curing toothache, asthma and it is claimed that "obstinate hiccups" are cured by drinking water in which pipal bark has been steeped.	Pipal trees are an important host of the lac insect
23.	Khamhar	<i>Gmelina arborera</i>	Tree	Flower, root.	Bark and fruit are used to treat bilious fever. As a blood cleanser, laxative, stomachic, tonic, and poison antidote in the roots; gonorrhoea and cough in the leaves; and as a treatment for wounds and ulcers.	Furniture dyeing and production, plywood core stock, mining props, matches, light construction with wood, canoes, musical instruments, and image carving. The flowers are combined with rice to create a delightful festive dish that resembles a cake and is consumed on the customary.
24.	Mach	<i>Hymenodictyon exelsum</i>	Tree	Bark, leaves	Astringent, febrifuge, and fevers	Wood for making furniture, wrapper bobbins and wool boards.
25.	Goonja	<i>Lannea coromandelica</i>	Tree	Bark, jaingani gum, fiber	Asthma and externally as a plaster to alleviate rheumatic pains.	Gum use for calico printing, confectionary. The astringent bark produces a little- used brown dye and a coarse fiber for making rope.
26.	Lendia	<i>Largestroemia parviflora</i>	Tree	Bark and gum, Black dye	Antiobesity, anti-inflammatory, antioxidant and antimicrobial	Wood is used to construct houses, boats, paneling, paraquet flooring, and furniture interior joinery.
27.	Mahua	<i>Madhuca longifolia</i>	Tree	Flower and Whole plant	Rheumatism and skin ailments.	The oil-cake left behind is used as a detergent, manure, vermicide and to poison fish, Mahua tree are too valuable to be felled for their timber
28.	Tinsa	<i>Ougeinia dalbergiodes</i>	Tree	Leaves , bark	Burning syndrome, urinary disorder, diarrhoea, fevers.	-
29.	Anola	<i>Phyllanthus emblica</i>	Tree	Tannin comes from fruit, bark, and leaves. Tannin content in leaves may range from 22 to 28%.	Diabetics, diarrhoea and dysentery, joint pain, eye issues, and diabetics. The tart fruit is one of the components in "Triphla."	Commonly used to make chutneys, tarts, jams, and other sweet treats.
30.	Karanj	<i>Pongamia pinnata</i>	Tree	Seed oil, root, flowers, leaves and bark	Skin diseases, wounds and ulcers.	No other use
31.	Bija	<i>Procarous marsupium</i>	Tree	seed, leaves and bark	Stimulate insulin, diabetes	Make furniture, doors, carts.
32.	Kusum	<i>Schlerichera trijuga</i>	Tree	Seed, Bark and lac.	Cattle wounds and sores. Malaria, ulcers, skin inflammations, and leprosy ruptures.	House construction, ship building and musical instruments
33.	Bhelwa	<i>Semecarpus anacardium</i>	Tree	Seed, fruit, gum and oil.	Astringent, bronchitis, dysentery, fever, asthma, hemorrhoids, digestive, stimulant, headaches, skin conditions, and scabies are just a few of the ailments it treats.	The plastics industry uses floor dressing as addicting lacquers, dyes, and insulating compounds for renewing rubber materials and to shield wood from white ants.
34.	Sal	<i>Shorea robusta</i>	Tree	Seed, Gum, Resin and Tannin	Treatment of dysentery, gonorrhoea, boils and toothaches.	Seed oil and butter is used traditionally as a cooking and burning oil and more recently as an ingredient of chocolate.
35.	Kullu	<i>Sterculia urens</i>	Tree	Seed, fruit, bark and gum	Pharmaceuticals as a laxative and adhesive, hypocholesterolemia and anti-inflammatory in animals	Ice-cream making and the food industries as an emulsifier and make canoes, toys and musical instrument.
36.	Padar	<i>Stereospermum chelonoides</i>	Tree	Bark, roots, leaves	Respiratory and digestive	Padar timber does not appear to be valued
37.	Jamun	<i>Syzygium cumini</i>	Tree	Leaves fruits , bark, and tannin-dye	Diabetes, diarrhoea, disease of the spleen, respiratory tract and dysentery.	It is durable in water and is ideal for lining well curbs. Village folk employ it is for a variety of constructional purpose.
38.	Imli	<i>Tamarindus</i>	Tree	Leaves, flowers,	Asthma, cardiac, blood sugar, cough,	Tannins can be used in ink or for fixing dyes as

		<i>indica</i>		fruits, roots, bark, stems, and leaves;	fever, inflammation, swelling, alleviate pain, malaria, intestinal worms, sores, ulcers, boils, rashes, and others	well as for sizing textiles, painting, and varnishing. woodworking, sugar mills, hubs, wheels, wooden utensils, agricultural implements, mortars, boat planks, toys, and furniture.
39.	Sagon	<i>Tectona grandis</i>	Tree	Whole plant	Arthritis, renal, skin, kidney illness, diabetes, and ulcer are all burning symptoms.	Timber wood.
40.	Behad	<i>Terminalia bellirica</i>	Tree	Bark, fruit, seed, whole plant.	Ascaris, grey hair, hoarseness, impaired eyesight, anaemia, asthma, piles, leprosy, liver illness, diarrhoea, hair loss, and dyspepsia are some of the symptoms.	Natural dyes.
41.	Arjun	<i>Terminalia arjuna</i>	Tree	Tannins and dye, leaves	Dysentery, urogenital and venereal symptoms, earaches, asthma, and blue duct dysfunction.	Additionally, a traditional khaki dye and tanning ingredient are derived from the bark. Arjun leaves are used as food when raising Tussar silkworms.
42.	Harrah	<i>Terminalia chebula</i>	Tree	Seed, fruit and bark	Asthma, worms, stomach and spleen problems, bronchitis, colds, constipation, dysentery, measles, sores, pneumonia, and eczema. primary component of triphla	Tannins, building wood, dyes, ink, furniture, carts, and tools are all utilised in diverse preparations.
43.	Saja	<i>Terminalia tomentosa</i>	Tree	Bark and Gum, tannins	Burns, dandruff, blood problem, anti-oxidant, antibacterial, and astringent.	Source tree for Cocoon (kosa) production. It is nevertheless extensively used by village folk for wide range of house building materials and furniture, wood makes an excellent fuel and charcoal.
44.	Ghot	<i>Zizphus xylopyrus</i>	Tree	Fruit, bark, seed and tannin.	Diabetes, diarrhoea, digestive, urinary disorders, abscess, acne.	Local shoemakers utilize tannins to cure leather. Suitable for the manufacture of plywood and veneer.

Shrub Species documented at various study site of Kondagaon (C.G.)

S.N	Local Name	Botanical name	Status	NTFPs Use	Medicinal Use	Other Use
1.	Jungli bhendi	<i>Abelmoschus moschatus</i>	Shrub	Seed, Bark, leaves.	Diuretic, demulcent, antiseptic, anti-spasmodic, cramp-cooling, tonic, carminative, aching joints, aphrodisiac, digestive system anti-spasmodic, patient with fever, and weak circulation.	Pesticide, food, opulent aromas, cosmetics, candies, alcoholic and non-alcoholic drinks, aroma 18.9% of the linoleic acid in seed oil comes from this substance. Oil is very valuable economically. Sails and ropes can be made from bark. Occasionally, packages are wrapped with leaves.
2.	Ketaki	<i>Agave sisilana</i>	Shrub	Leaf, stem	Dysentery, leprosy sores, and syphilis, synthesis of the drug cortisone	Rope, nets, mats, basket and also planted as barrier and on ornamental plant.
3.	Amati	<i>Antidesma diandrum</i>	Shrub	Leave and fruits	Dysentery, biliary complaints, and dropsy muscle aches, pneumonia, sores, and mosquito bites	The wood is used to make poles, automobiles, ships, and tools for growing vegetables or making curries.
4.	Mahul	<i>Bauhinia vahlii</i>	Shrub	Leaves, stem, and seed.	Demulcent and mucilaginous tonic and aphrodisiac.	Matting, basketry, and wickerwork all make use of ropes and stems. The kitchenware, tablecloths, raincoats, and umbrellas were made of leaves.
5.	Malkaghni	<i>Celastrus paniculata</i>	Shrub	Seeds, oil	Amnesia, leprosy, pneumonia, pleurisy, amenorrhoea, leucoderma.	On paralyses areas, the oil is used in the morning and evening. To treat leucorrhoea, powdered bark is combined with cow milk and given once day for a month.
6.	Duma	<i>Clerodendron serratum</i>		Leaves, Flower, root	Malaria, fever, respiratory disease	No other uses
7.	Bhandar	<i>Colebrookia oppositifolia</i>	Shrub	Leaves, flower	Cure epilepsy, urinary problem, dysentery, peptic ulcer, hepatitis.	No other uses
8.	Salparni	<i>Desmodium gangeticum</i>	Shrub	Root and leaves.	Stones in the kidneys or bladder, a headache, a toothache, swellings, a persistent fever, a cough, biliousness, a toothache with a diuretic, diarrhoea and dysentery	Cover crops and manure To make paper, the fibrous stems are used.
9.	Chikati	<i>Desmodium velutinum</i>		Leaves, root	Cough, malaria, hepatitis	No other uses
10.	Baibidang	<i>Embelia ribes</i>	Shrub	Seed, leaves, bark	mouthwash that is calming, diuretic and laxative, treats coughs and diarrhoea as well as sore throats and ulcers.	Leeches are attracted by freshly crushed bark.
11.	Vantulsi	<i>Eranthemum pupurascens</i>		Seed	Cold, cough fever	
12.	Eupatorium	<i>Eupatorium</i>	Shrub	Leaf,	Diuretic, emollient, common cold, fever	Fungitoxic in nature against both the mango

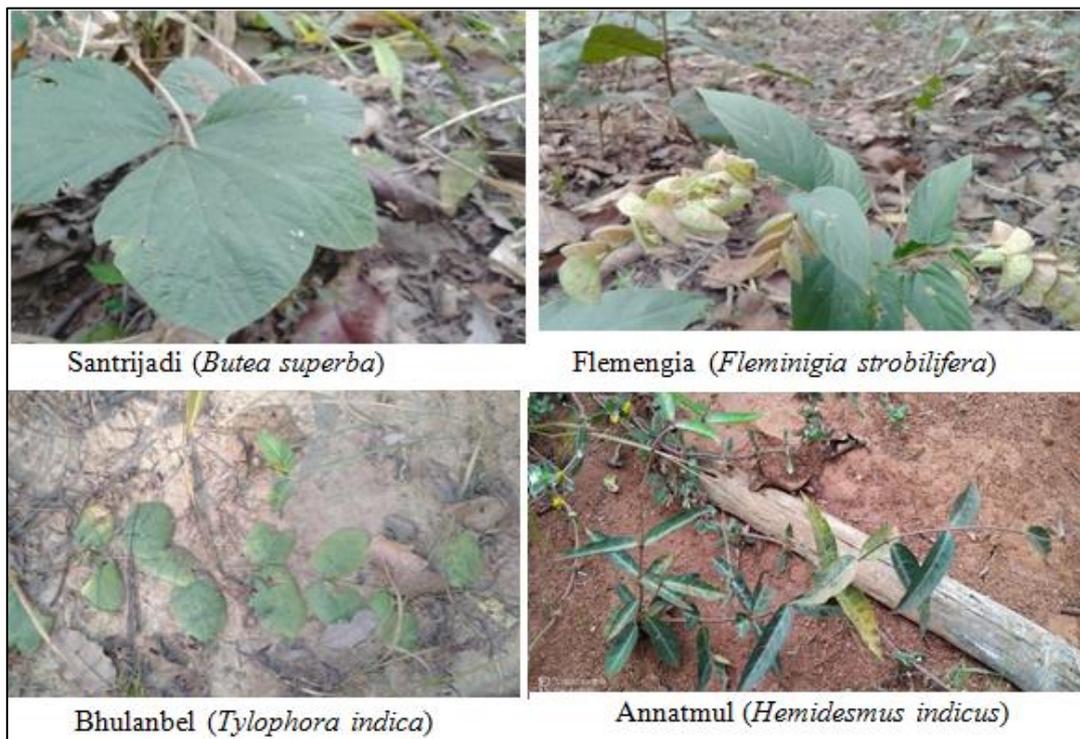
		<i>cannabium</i>		Flower		rotting fungi, oil.
13.	Kudmudi	<i>Gardenia gummifera</i>	Shrub	Whole plant	Digestive problem, astringent indigestion	Gum-resin from leaf buds
14.	Dikamali	<i>Gardenia lucida</i>	Shrub		Increases appetite, astringent to bowels, relieves discomfort of bronchitis vomiting and constipation.	Use for Gum, ornamental gardening.
15.	Maroraphalli	<i>Helicres isora</i>	Shrub	Bark, root and fruit.	Cures dysentery, stomach pain, expectorant, diarrhoea and a remedy for scabies	Bark is used as cordage to bind animals and ploughs, as well as to make cots. Ropes and garments can be made from bark fiber.
16.	Nil	<i>Indigofera tinctoria</i>	Shrub	Leaf flower are used for vegetable	Skin conditions, wounds, sores, ulcers, hemorrhoids, worm-infested wounds, toothache, syphilis, gonorrhoea, kidney stones, asthma, bronchitis, fever, problems of the stomach, liver, kidney, and spleen, as well as rabies vaccination	Cover crop, green manure and dye
17.	Lantana	<i>Lantana camara</i>	Shrub	Seed, flower, fruit, bark and root,	Flu, cough, mumps, chronically high fever, malaria, cervical lymph node tuberculosis, asthma, toothache, headache, inflammation, gonorrhoea, and leucorrhoea are some of the illnesses that can affect people. Measles, chickenpox, eczema, and dermatitis rashes	Firewood fencing, windrows, woodlots, or natural bush are all examples of biocides (fungicidal, insecticidal, and nematocidal). Hedge, mulch, paper pulp production for writing and printing, firewood, erosion control.
18.	Khokalikanda	<i>Moghania involucrate</i>		Root	Pain, headache.	
19.	Harsingar	<i>Nyctanthus arbor-tristis</i>	Shrub	Flowers is used for colouring food.	Menstruation, cholagogue, laxative, diuretic, skin conditions, cough, ringworm, pain, fever, and hair loss can all be induced.	Hedges, silk dyeing, leather tanning, wood polishing, and ivory oil fragrance.
20.	Chind	<i>Phoenix acaulis</i>	Shrub	Leaves, fruit and juice.	Respiratory illnesses, fevers, vomiting, loss of consciousness, toothache, gonorrhoea, abdominal problems, and diarrhoea.	In adding to thatching roofs, leaves are used to construct mats, ropes, bags, umbrellas, and fences. Drinking the tree's juice is seen to be a refreshing activity. The stems are used to make fuel, hut walls, fences, and local home roofs and walls.
21.	Jhau	<i>Tamarix ericoides</i>		Stem, leaves, root, tannins	Diabetes, painful urination, stomach disorder.	
22.	Dhawai	<i>Woodfordia floribunda</i>	Shrub	Flower	Dysentery, menorrhagia, heart conditions, wounds, fever, ulcers, acne, digestive issues, blood impurities, gout, and skin conditions are just a few examples.	Tannins and dye
23.	Katakoli	<i>Ziziphus rugosa</i>	Shrub	Whole plant	Menorrhagia, hypotension, postpartum discomfort, nausea, a snake bite, an abortion, and pneumonia	Hedges, fuel, charcoal, furniture, carvings, building poles, and tool handles.

Herb & Climber Species documented at various study site of Kondagaon (C.G.)

S.N.	Local Name	Botanical name	Status	NTFPs Use	Medicinal Use	Other Use
1.	Chirchita	<i>Achyranthes aspera</i>	Herb	Root, seed, leaf, whole plant	Diuretic, antispasmodic, dropsy, rheumatism, stomach issues, cholera, rabies, skin conditions, scorpion stings, diarrhoea, dysentery, pyorrhea, and toothaches, as well as nervous system disorders, hysteria, and bug and snake bites	Tooth powder, washing clothes and toothbrushes
2.	Kalmegh	<i>Andrographis paniculata</i>	Herb	Whole plants	Joint pain, jaundice, headache, malaria, anti-helminth, antic fever, itchy skin eruption, (HIV), snake bites, stomachache, dysentery, typhus, cholera, influenza, bronchitis, diuretic, female disorders, dyspepsia, hypertension, rheum-autism, gonorrhoea, amenorrhoea, torpid liver, and jaundice are some of the	Insecticide.
3.	Satavar	<i>Asparagus racemosus</i>	Climber	Whole plant	A urinary disorder, piles, fever, wound, anti-toxic, weakness, cough, diarrhoea, headache, asthma.	The squeezed root is used for washing clothes.
4.	Rasna	<i>Blepharispermum subssile</i>	Herb	Root	Rheumatic, gynecological, nervous disorder	
5.	Jungli kulthi	<i>Cajanus scarabaeoides</i>	Herb	Leaves and seed	Cattle diarrhoea, hyperglycemia, sore throats, and an excessive amount of urine production	Green manure, fodder, food.
6.	Charota	<i>Cassia tora</i>	Herb	Seed and leaves	Infections, nausea, stomachaches, sores, ulcers, bug bites, and eye complaints are all eliminated from the body by ringworm and other skin conditions.	In place of coffee and sodas, cassia tora tea is a herbal, pure, unadulterated, and unpolluted green health beverage. Organic pesticide.
7.	safed musli	<i>Chlorophytum</i>	Herb	Root.	Male impotence, tonic, and tuberculosis.	Powder use

		<i>tuberosum</i>				
8.	Kewkanda	<i>Costus speciosa</i>	Climber	Leaves And rhizome	Diuretic, feverish colds, diabetes, bronchitis, asthma, and skin conditions	Chutney and ornamental uses.
9.	Kalimusli	<i>Curculigo orchinoides</i>	Herb	Root,	Asthma, jaundice, chronic nephritis, diarrhoea, lumbago, piles, gonorrhoea, leucorrhoea, peptic ulcers, and headache	Juice
10.	Tikhur	<i>Curcuma anghustifolia</i>	Herb	Rhizome.	Bone demulcents and fractures, chronic illnesses, fevers, breast milk, urinary tract, acidity, bronchitis and sore throats, asthma, and ulcers.	Tikhur barfi and cooling squash.
11.	Banhaldi	<i>Curcuma aromatica</i>	Herb	Rhizome	Antioxidant, anti-inflammatory, anti diabetic , and wound healing	
12.	Karukanda	<i>Dioscorea bulbifera</i>	Climber	Leaves, tuber and roots.	Fever, diarrhoea, haemorrhoids, purulent, ophthalmia, and for snake-bite	Use as a vegetable.
13.	Kosakanda	<i>Dioscorea esculenta</i>	Climber	Tuber	Dyspepsia, swelling, ulcers, menopause, beriberi, Rheumatism.	Use as a vegetable
14.	Kosakanda	<i>Dioscorea esculenta</i>	Climber	Tuber	Dyspepsia, swelling, ulcers, menopause, beriberi, Rheumatism.	Use as a vegetable.
15.	Fleminigia	<i>Fleminigia strobilifera</i>	Herb	Root	Insomnia, ulcer, inflammation, microbial	
16.	Annatmul	<i>Hemidesmus indicus</i>	Herb	Roots.	Blood purifier, demulcent, diaphoretic, diuretic, appetite loss, dyspepsia, fever, genitourinary disorders, syphilis, leucorrhoea, chronic coughs, and tonic	Rope is made from the bark's fibrous material.
17.	Bashmpatti	<i>Kalanchoe pinnata</i>	Herb	Leaves	Difficulty in urination, kidney stones	
18.	Sarpgandha	<i>Rauwolfia serpentine</i>	Herb	Root	Hypertension, eye disorder, cuts, wounds, headache	
19.	Ramdatun	<i>Smilax macrophylla</i>	Climber	Root	Urinary tract infections, edema, gingivitis, and dental abscesses. sexually transmissible conditions	Rope.
20.	Giloy	<i>Tinospora cordifolia</i>	Climber	Whole plant	Fever, diarrhoea, diabetes.	Giloy powder and aloe vera gel can be used together to make a face mask that will improve the complexion of the skin.
21.	Gokharu	<i>Triubulus terrestris</i>	Herb	Fruit, leaf, root	Chest pain, Heart problems, dizziness Skin and eye disorder, diuretic and tonic, treats infertility	
22.	Bhulanbel	<i>Tylophora indica</i>	Climber	Fruit, leaves	Joints, jaundice, whooping cough,	





Conclusion

The extraction techniques of various NTFPs were found unsustainable/ destructive recorded in this investigation. The skilled training on scientific harvesting methods should be provided on how to harvest properly and use the valuable NTFPs which are natural resources for our survival. The threatened and economically significant NTFPs, including Char, Mushroom-Boda, Amla, Kalmegh, Honey, and Tikhur, might be domesticated in kitchen gardens as well as protected forests as in situ cultivation and conservation. The institutional setup and marketing infrastructure for denationalized forest products needs to be improved. After that the life of the tribes who are the one of the stakeholder would be improved, the state and central governments must set the minimum support price for each NTFP as Govt. of Chhattisgarh declared this excellent incentive on the NTFPs. In case of post harvest, storage processing and value addition with smart packaging will play a significant role to increase the income of NTFP collectors of the state. The transport of NTFPs as a raw material must be banned this will attract many startups and employment to local youth. The industries will setup here to the cost of transport from Chhattisgarh to different states of India.

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