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Diversity of edible wild plants of Pendra road forest region of Chhattisarh

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Abstract
Pendra road is a forest region, which is situated in Northern region of Bilaspur district of Chhattisgarh state. The climatic condition of district is sub humid type. Average rainfall is 52.8 mm/year. Edible wild plants are an important source of food of tribes in this region. The Present in vestigation deal the traditional wild food plants used by tribal people in this region. Tribal Population of pendra road is approximately 25-30%. Fifty six species of wild plants were used by inhibited tribal's and villagers for food. Among those species 21 species are herb, belonging to 21 Genera, and 15 families, followed by 10 species are shrub, belonging to 10 Genera and 10 families and 17 species are trees belonging to 15 Genera and 12 families. 07 species are climber in nature belonging to 05 Genera and 05 families documented plants 16 were abundant 24 were common and 15 were uncommon in this area. Total no of Genera and species are Calculated. Study of diversity of edible wild plants could contribute to improve food security and vegetable status of reemit areas. This type of study is helpful for government to make food policy in reemit areas of tribal's and villagers.

Keywords: wild edible plants, pendra road, forest region, tribal's and villagers, wild plants

Introduction
Pendra Road forest region is a part of Bilaspur District the total forest cover is approximately 59772km2 Bilaspur district is situated in the Northern region of Chhattisgarh state. It lies between 25^0.5' North latitude and 82^0.12 East longitude. The climatic condition and soil is favorable for vegetation growth Pendra road is a hilly mountain maikal series region of the district. In this region mostly inhibited Peoples are tribal and Rural, Baiga, Bhumia, Bhinjwar, Bheel, Gond, Kanwar, Korwa, Portha etc. are inhibited tribe in this region many works such as forestry and food gathering, shifting cultivation, settled agriculture, Agricultural labour, animal husbandry, Household industry etc are reported. Many plants are edible and ethnomedicinal. The inhibited tribal and villagers use those plants to cure different diseases and fulfill their food requirement. Bilaspur district is very reach for their floristic bio-diversity. Their phytogeographical and ethnobotanical diversity provide enormous scope for ethnobotanical studies. The local villagers still use wild plants for their natural habitats for food and medicine in particular for food and medicine in particular. This work has been carried out to organize a record of native edible wild plants and collect the information about their food properties.

Materials and Methods
Study area
Pendra road "Gourella" is a town and a nagar panchayat in Bilaspur district in the state of Chhattisgarh It lies $22^044'55"$ N and $81^054'43"$ E latitude. Gaurella is the location of the pendra road railway station on Bilaspur Katni rail route of South East. Central Railway and is the highest point on the s.e.c. railway Height from sea level is 618.4m.

Climatic condition and Soil
The climatic data of the study area for the study period was obtained from weather department of Pendra Road. The day wise data on temperature (maximum and minimum), Number of rainy days, relative humidity and rainfall were computed and expressed as monthly average Maximum temperature of 39.04^0c was record in the month of April 2016; whereas minimum was 9.7^0c recorded in the month of December. August and September were recorded as the moistest month having maximum relative humidity of 91.9% and 87.9% relative humidity of 91.9% April was the driest month, having 2.16 relative humidity Maximum rainfall was received in the month of August 146.93 mm minimum rainfall was recorded in the month of November

Soil Types
In Pendra Road Tehsil mainly two type of soil occured first one is Dorsa and the second is Tikra.
Dorsa (Aifisols) are a soil order in USDA soil taxonomy Alfisols form in semiarid to humid areas, typically under a hardwood forest cover. They have clay enriched subsoil and relatively high native fertility "Alf" refers to aluminium (Al) and iron (Fe) Because of their productivity and abundance the Alfisols represents one of the more important soil orders for food and fiber production. They are widely used both in agriculture and forestry and are generally easier to keep fertile than other humid-climate soils.

Tikra Soil (Inceptisols)
Inceptisols are a soil order in USDA soil taxonomy. They found quickly through alteration of parent material they are. More developed then Entisols. They have no accumolation of a clays, iron oxide, Alluminium oxide or organic matter. They have an ochric or umbric horizone and a cambic subsurface horizone. It suits all types of crop.

Vegetation composition
Main vegetation occured in this area are Sal, Saja, Khamhar,

Haldi, Sagon, Shisham, Neelgiri, Harra, Bahera, Char, Tendu, Palash etc.

Methodology

A field survey was conducted during the year 2017 in the selected area for the wild edible plants. The information was gathered after discussions with several tribal person, village head, elder women and other local informants. Tribal informants were consulted and they provided useful information on wild edible plants and their usefulness in various dietary and other purposes. The main aim of the survey was to collect information on wild edible plants which are used by the tribal's and to identify and document by collecting sample of plant species The identified and collected plant sample were arranged and documented according to their uses were noted. The identified wild edible plants were confirmed from the books Floristic Diversity of Chhattisgarh, Flora of India and the wealth of India.

Result and Discussion

A total of 55 plant species belonging to 55 Genera and 42 families were recorded after conducting survey out of 55 wild edible plants 16 were abundent species are *Moringa oleifera, Tamarindus indica, Colocasia esculenta, Amorphophallus sylvaticus, Syzygium cumini, Annona squamosa, Artocarpus heterophyllus, Annona reticulata, Buchanania lanzan, Terminallia bellirica, Shorea robusta, Semecarpus anacardium, Madhuca indica, Ziziphus rotundifolia, Diospyros melanoxylon, Azadiracta indica.*

24 were common, species are *Aegle marmelos, Phyllanthus emblica, Dendrocalamus strictus, Chenopodium album, Ludwigia hysspifolia, Dioscorea bulbifera, Canavalia gladiata, Fimbristylis dichotoma, Amaranthus polygamus, Cassia tora, Bauhinia purpurea, Leucas aspera, Corchorus olitorius, Ficus religiosa, Curculigo orchioides, Chlorophytum tuberosum, Polygonum plebeium, Hyptis suaveolens, Desmodium pulchellum, Mimordica dioica, Adiantum lanulatum, Oxolis corniculata, Ficus bengalensis, Ipomea aquetia.*

15 were uncommon species are *Carissa carandas, Ipomea botatas, Gmelina arborea, Costus speciosus, Paspalum scrobiculatum, Curcuma angustifolia, Ficus hispida, Catunaregam uliginosa, Pyraria tuberosa, Dioscorea hispida, Asparagus racemosus, Pandanus odoratissimus, Smilex zeylanica.*

These plants use as food by tribal people and local people of this area. Maximum tribal people are using leafy vegetable as a part of their food. Fruits are eaten as raw as well as ripen form. Tubers of certain species are cooked and eaten as curries. Roots of some species also used as food.In this respect, Ajay Banik *et al* (2014) [4] reported 22 edible roots and tuberous plant were belonging to different family mainly used by tribes of Bastar. Ashok k Pandey *et al* (1997) [17] reported 143 plants species are being used by Shan tribes as there supplementary source of food material, B. Mallah reddy (2011) reported 61 plant species which includes corms, tubers, leaves, flowers, fruit and seeds, which is used by tribes, food. Dipankar debet all (2013) [10] reported 41 wild species from Northeast India which used as food supplements by ethnic communities.

Table 1: Edible wild plants in Pendra Road Forest region

S.No.	Botanical name	Local name	Family	Habit	Useful plant parts
1	Adiantum lanulatum	Sunsunia bhaji	Adiantaceae	Herb	Leaf
2	Aegle marmelos	Bel	Rutaceae	Tree	Fruit
3	Amaranthus polygamus	Cholai bhaji	Amaranthaceae	Herb	Leaf
4	Amorphophallus sylvaticus	Jimikand	Araceae	Shrub	Corm
5	Annona reticulata	Ramphal	Annonaceae	Tree	Ripe fruit
6	Annona squamosa	Seetafal	Annonaceae	Tree	Fruit
7	Artocarpus heterophyllus	Kathal	Moraceae	Tree	Fruit
8	Asparagus racemosus	Shatawar	Lilliaceae	Shrub	Fruit, leaf, tubers
9	Azadiracta indica	Neem	Meliaceae	Tree	Ripe fruit, leaf
10	Bauhinia purpurea	Koilar bhaji	Caesalpiniaceae	Herb	Leaf
11	Buchanaia lanzan	Char	Anacardiaceae	Tree	Ripe fruit, seed
12	Canavalia glodiata	Jangali semi	Fabaceae	Climber	Fruit
13	Carissa Carandas	Karonda	Apocynaceae	Shrub	Fruits
14	Cassia tora	Charota bhaji	Caesalpiniaceae	Herb	Leaf
15	Catunaregam uliginosa	Thelka	Rubiaceae	Shrub	Ripe fruts
16	Chlorophytum tuberosum	Safed mushli	Lilliaceae	Herb	Tubers
17	Chnopodium album	Bathua	Amaranthaceae	Herb	Leaf
18	Colocasia esculerta	Kochai	Araceae	Herb	Corm, leave
19	Corchorus olitorius	Chench bhaji	Tiliaceae	Herb	Leaf
20	costus speciosus	Keukand	Costaceae	Shrub	Corm
21	Curculigo orchioides	Kali mushli	Amaryllidaceae	Herb	Leaf, root
22	Curcuma angustifolia	Tikhur	Zingiberaceae	Herb	Rhizomes
23	Dendrocalamus strictus	Bans	Poaceae	Shrub	Younge shoot
24	Desmodium pulchellum	Teenpania bhaji	Fabaceae	Herb	Leaf
25	Dioscorea bulbifera	Dang kanda	Dioscoreaceae	Climber	Fruit, leaf
26	Dioscorea hispida	Bechandi	Dioscoreaceae	Climber	Tuber
27	Diospyros melanoxylon	Tendu	Ebenaceae	Tree	Ripe fruit, leaf
28	Ficus bengalensis	Bargad	Moraceae	Tree	Ripe fruit
29	Ficus hispida	Dumer	Moraceae	Shrub	Fruits
30	Ficus religiosa	Peepal	Moraceae	Tree	Ripe seed

31	Fimbristylis dichotoma	Jangli khekshi	Cyperaceae	Climber	Fruit
32	Gmelina arborea	Khamhar bhaji	Verbenaceae	Herb	Leaf
33	Habenaria marginata	Van pyaj	Orchidiaceae	Shrub	Stem, root
34	Hyptis suaveolens	Ban tulsi	Lamiaceae	Herb	Seed
35	Ipomea aquetia	Karmata bhaji	Convolvulaceae	Herb	Leaf
36	Ipomea botatas	Shakarkand	Convolvulaceae	Herb	Corn
37	Leucas aspera	Bodki bhaji	Lamiaceae	Herb	Leaf
38	Ludwigia hysspifolia	Fohi bhaji	Onagraceae	Herb	Leaf
39	Madhuca indica	Mahua	Sapotaceae	Tree	Ripe fruit
40	Mimordica dioica	Van karela	Cucurbitaceae	Climber	Fruit
41	Moringa oleifera	Munga	Moringaceae	Tree	Fruit, flowers. Root
42	Oxalis corniculata	Tina bhaji	Oxalidaceae	Herb	Leaf
43	Pandanus odoratissimus	Kewda	Pandanaceae	Shrub	Fruit, leaf
44	Paspalum scrobiculatum	Kodo	Poaceae	Herb	Seed
45	Phyllanthus emblica	Aamla	Euphorbiaceae	Tree	Fruit
46	Polygonum plebeium	Chanti bhaji	Polygonaceae	Herb	Leaf
47	Polygonum plebeium	Chanti bhaji	Polygonaceae	Herb	Leaf
48	Pyraria tubrosa	Patal kumhada	Fabaceae	Climber	Root, flower
49	Semecarpus anacardium	Bhelwa	Anacardiaceae	Tree	Ripe fruit
50	Shorea robusta	Sal	Dipterocarpaceae	Tree	Fruit, seed
51	Smilex zeylanica	Ramdatan	Smilacaceae	Climber	Stem
52	Syzygium cumini	Jamun	Myrtaceae	Tree	Fruit
53	Tamarindus indica	Emli	Fabaceae	Tree	Fruits, flower
54	Terminallia bellirica	Bahera	Combretaceae	Tree	Seed
55	Ziziphus rotundifolia	Ban ber	Rhamnaceae	Shrub	Ripe fruit

Table 2

S.No.	Plant in different life form	No. of Genera	No. of Families
1	Herb-21	21	15
2	Shrub -10	10	10
3	Tree-17	15	12
4	Climber-07	05	05

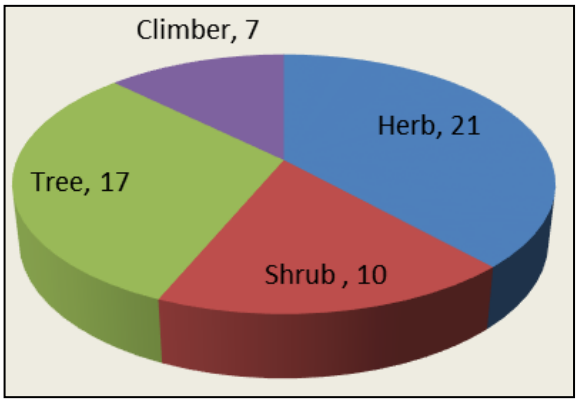

Fig 1: No. of species in different life form.

Fig B: Syzygium cumini fruit

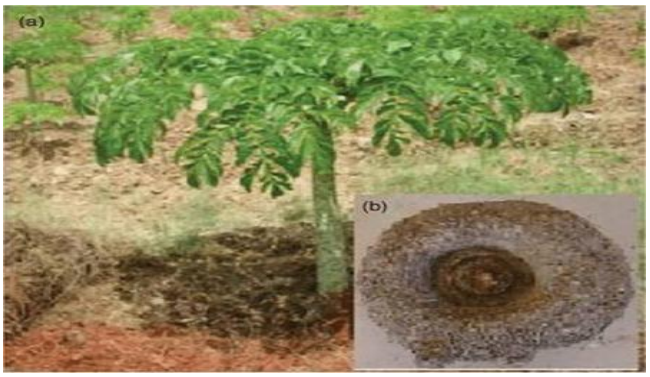

Fig A: Amorphophallus Sylvanticus.corm

Fig C: Phyllanthus emblica fruit

Fig D: Annona squamosa fruit

Fig E: Chenopodium album leaf

Fig F: Colocasia esculenta corm

Fig 2(A-F): Some wild edible plants and their edible Parts

Conclusion

Wild food plants are used common household food and make a substantial contribution to the food security of the tribal people in many parts of Pendra road. Therefore, steps are needed to undertake extensive education about their importance as a nutritionally balanced food and as a direct and indirect source of income particularly for the resource poor families Many of the wild foods may not be freely available in future due to over- exploitation, habitat destruction, regular forest fires and invasion of alien exotic species so, efforts must be taken to conserve wild food plants and also the traditional knowledge for a sustainable management of biodiversity.

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