

**AN ETHNOBOTANICAL STUDY OF SOME WILD EDIBLE PLANTS USED BY KORAKU TRIBALS OF BALRAMPUR DISTRICT CHHATTISGARH INDIA****IGNACE KINDO* AND S. JOHN BRITTO***The Rapinat Herbarium and Centre for Molecular Systematics, St. Joseph's College (Autonomous) Tiruchirappalli, Tamilnadu, India***ABSTRACT**

The present study deals with the results of a preliminary survey of the wild edible plants used by Koraku tribals of Balrampur district chhattisgarh. The Koraku tribals dominate the wooded habitat of this hilly region. About 66 plant species belonging to 35 families are used as edibles by the tribes. Of these, the wild fruits of 40 plant species, leaves of 13 plant species, seeds of 6 plant species, 5 plant species for underground parts and 2 plant species for shoots are consumed either raw or cooked. The survey reveals that 30 (45%) plant species are trees, 17 (26%) herbs, 8 (12%) creepers, 6 (9%) climbers and 5 (8%) shrubs. The plant species, their families, vernacular names, parts used and their mode of usage are also reported.

KEY WORDS: Koraku tribes, Balrampur, Chhattisgarh, Traditional knowledge, Wild edible plants, Biodiversity.**IGNACE KINDO**The Rapinat Herbarium and Centre for Molecular Systematics, St. Joseph's College (Autonomous)
Tiruchirappalli, Tamilnadu, India

*Corresponding author

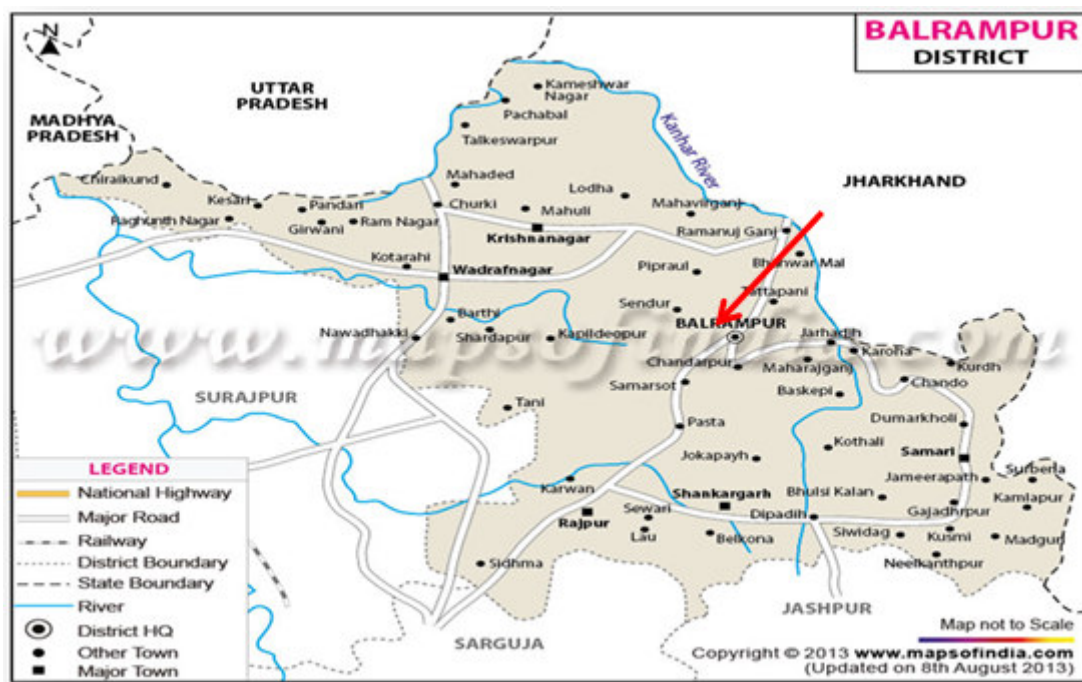
INTRODUCTION

Biodiversity offers and acts as indispensable source for securing different fundamental human needs¹⁻³. Human history reveals that people have gathered plant and plant products to meet their various requirements. Majority of the people, living in developing countries, derive a substantial part of their subsistence and income from wild plant products⁴. Wild edible plants provide staple food for indigenous people, serve as complementary food for non-indigenous people and offer an alternative source of cash income⁵⁻⁷. Wild edible plants are an important nutrient and vitamin supplements for indigenous people^{8, 9}. Therefore, wild food resources reduce the vulnerability of local communities to food insecurity and provide a buffer in times of food shortage¹⁰⁻¹². In addition, wild edible plants have substantial potential for the development of new crop plants through domestication and provide a genetic resource pool for hybridization and selection^{9, 13, and 14}. Many valuable wild food plants are confined to certain areas or to certain communities but are unknown to others. The rapid decline of traditional knowledge

about wild edible plants and increased reliance on processed food, documentation and evaluation of the traditional knowledge related to the diversity, usage, and status of wild edible plant is crucial. Documentation of traditional knowledge regarding wild edible plant in Balrampur district of Chhattisgarh is very limited compared to medicinal plants¹⁵. Some of the wild edible plants were documented in the past^{16, 17}, but still many more wild species are believed to be edible and awaiting documentation. As far as the knowledge and literature citation are concerned it is the first hand report of the author with regard to wild edible plants and their conservation potentials in Balrampur district of Chhattisgarh. Nevertheless, these studies were geographically restricted to small areas. Wild edible plant species are still largely ignored in land use planning and implementation, in economic development, and in biodiversity conservation endeavours^{18, 19}. Considering this, the study was undertaken to gather data on diversity, traditional knowledge, economic potential, and conservation value of wild edible plants from community and forests of Balrampur district Chhattisgarh.

Study Area





Balrampur district which was earlier a part of Ambikapur (Surguja) division came into existence in 1st January 2012. It has Latitude of 23°06'67"N and Longitude of 83°06'2°03"E, with a total area of 3806.08 Sq.Kms (Approx.) with 6 Block divisions, comprising of 645 villages of which 642 are much populated. According to census 2001 total population of the district was 5,98,855 of which Male 2,94,488 and Female 3,04,367 and Sex Ratio 1000: 970. Density of the population is 157 per Sq. Km. Average Literacy rate 54.24%, Male Literacy rate 67.27% and Female Literacy rate 51.79% (2001 census). The climate of Balrampur is of extreme nature. It is very hot in the summer and biting cold in the winter.

MATERIALS AND METHODS

Intensive field survey was conducted from 2014 July to 2015 July with the help of village heads (Muhkaya) and the persons who have rich knowledge of wild fruits (Vaidya). Survey was conducted thrice every year with the duration of 20 - 25 days. The local guides and informants were taken up to locate and collect the plant species from the premises of settlement and nearby forests. Informations were collected from the womenfolk, children and men who are largely involved in the collection of wild fruits. The taxonomic identification of the plants was carried out by Dr.S.John Britto, Director and Head, The Rapinat Herbarium and Centre for Molecular systematics St. Joseph's College (Autonomous) Tiruchirappalli, Tamilnadu, India. The voucher specimens were deposited at the centre. Plants are arranged alphabetically with Botanical names

followed by family, vernacular name, and habit (Table 1-5).

RESULTS

In the present ethnobotanical investigation 66 wild edible plants belonging to 35 families were reported (Table 1-5). Family cucurbitaceae was the dominant representing seven taxa, followed by Moraceae representing six taxa, Rutaceae and Fabaceae four each taxa, Rhamnaceae, Malvaceae, Amranthaceae, and Anacardiaceae three each taxa, while Annonaceae Myrtaceae, combretaceae, Dioscoreaceae and Araceae two each taxa other are having one each. Trees made up the highest proportion of the edible species 30 (45%), followed by seventeen herbs (26%), eight (12%) creepers, six (9%) climbers and five (8%) shrubs. Due to over exploitation, overgrazing and urbanization the status of edible fruit plants are declining rapidly.

DISCUSSION

As a discussion the wild fruits of 40 plant species, leaves of 13 plant species, seeds of 6 plant species, 5 plant species for underground parts and 2 plant species for shoots are consumed either raw or cooked. The study reveals that 30 plant species are trees, 17 herbs, 8 creepers, 6 climbers and 5 shrubs. Hence we observe vegetation as a varied source of edible plant species complimenting the human needs.

Table 1
Edible fruit bearing plants

S.No.	Scientific Name	Family	Vernacular name	habit	Parts used
1.	Aegle marmelos	Rutaceae	Bel	Tree	Fruit
2.	Alangium salviifolium	Cornaceae	Ankol	Tree	Fruit
3.	Annona squamosa	Annonaceae	Sitaphal	Tree	Fruit
4.	Artocarpus lakoocha	Moraceae	Dahu	Tree	Fruit
5.	Annona reticulata	Annonaceae	Ramphal	Tree	fruit
6.	Averrhoa carambola	Oxalidaceae	Star apple	Shrub	Fruit
7.	Citrus aurantium	Rutaceae	Santra	Tree	Fruit
8.	Careya arborea	Lecythidaceae	Pendar	Tree	Fruit
9.	Citrus maxima	Rutaceae	Pamaloo	Shrub	Fruit
10.	Citrus aurantifolia	Rutaceae	Nibu	Shrub	Fruit
11.	Coccinia grandis	Cucurbitaceae	Kundru	Climber	Fruit
12.	Diplocyclos palmatus	Cucurbitaceae	Nerdimbo	Creeper	Fruit
13.	Diospyros melanoxylon	Ebenaceae	Tendu	Tree	Fruit
14.	Ficus benghalensis	Moraceae	Bargad	Tree	Fruit
15.	Ficus religiosa	Moraceae	Pipal	Tree	Fruit
16.	Ficus tsjahela	Moraceae	Pakri	Tree	Fruit
17.	Ficus racemosa	Moraceae	Gular	Tree	Fruit
18.	Lagenaria siceraria	Cucurbitaceae	Lauki	Creeper	Fruit
19.	Luffa acutangula	Cucurbitaceae	Jhinga	Creeper	Fruit
20.	Luffa cylindrica	Cucurbitaceae	Gongra	Creeper	Fruit
21.	Litchi chinensis	Sapindaceae	Lichee	Tree	fruit
22.	Lantana camara L.	Verbenaceae	Putus	Herb	Fruit
23.	Mangifera indica	Anacardiaceae	Aam	Tree	Fruit
24.	Morus alba	Moraceae	Sahtut	Tree	Fruit
25.	Momordica charantia	Cucurbitaceae	Karella	Creper	Fruit
26.	Madhuca longifolia var latifolia	Sapotaceae	Mahua	Tree	Flower
27.	Moringa oleifera	Moringaceae	Sehjan	Tree	Fruit
28.	Prunus persica	Rosaceae	Satallu	Tree	Fruit
29.	Piper nigrum	Piperaceae	Goal mirch	Climber	Fruit
30.	Phyllanthus emblica	Phyllanthaceae	uvla	Tree	Fruit
31.	Psidium guajava	Myrtaceae	Amrud	Tree	fruit
32.	Physalis peruviana	Solanaceae	Phuttu	Herb	Fruit
33.	Semecarpus anacardium	Anacardiaceae	Bhelwa	Tree	fruit
34.	Schleichera oleosa	Sapindaceae	Kusum	Tree	Fruit
35.	Syzygium cumini	Myrtaceae	Jamun	Tree	Fruit
36.	Tamarindus indica	Fabaceae	Imli	Tree	Fruit
37.	Zizyphus mauritiana	Rhamnaceae	Ber	Tree	Fruit
38.	Zizyphus oenoplia	Rhamnaceae	Makoi	Shrub	Fruit
39.	Zizyphus nummularia	Rhamnaceae	Jherberi	Shrub	fruit
40.	Zehneria scabra	Cucurbitaceae	Bodela	Creeper	Fruit

Table 2
Plants with Edible seeds

S.No.	Scientific Name	Family	Vernacular name	Habit	Parts used
1.	Bauhinia vahlii	Fabaceae	Mahalan	Climber	Seed
2.	Buchanania cochinchinensis	Anacardiaceae	Char	Tree	Seed
3.	Mucuna pruriens	Fabaceae	Kussha	climber	Seed
4.	Shorea robusta	Dipterocarpaceae	Sal	Tree	Seed
5.	Terminalia catappa	Combretaceae	Badam	Tree	Seed
6.	Terminalia bellirica	Combretaceae	Bahera	Tree	Seed

Table 3
Plants with Edible underground parts

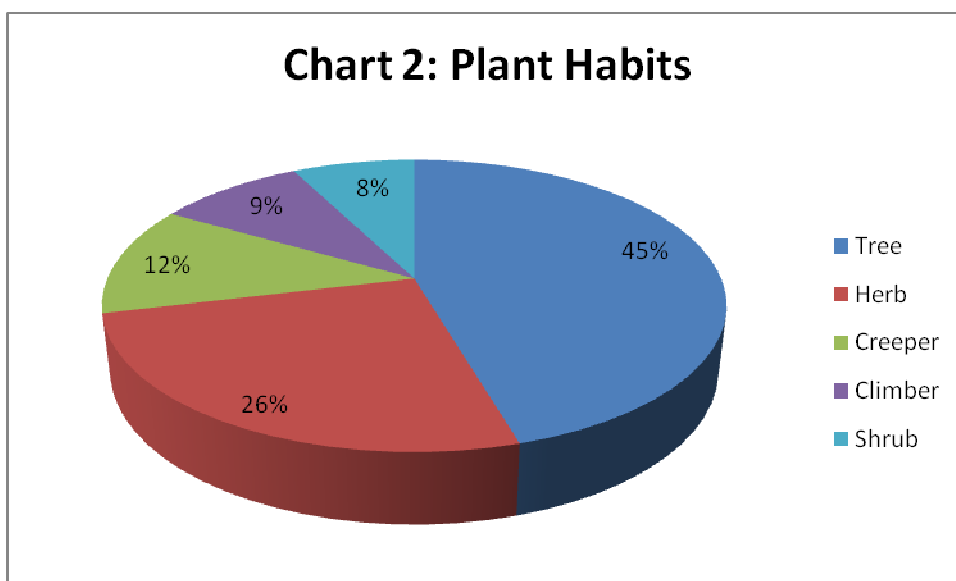
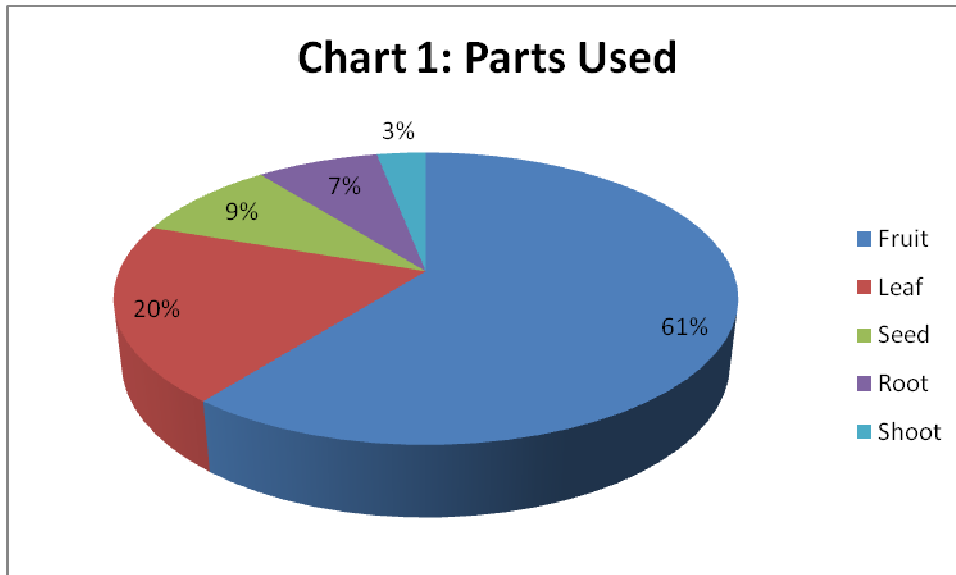
S.No.	Scientific Name	Family	Vernacular name	Habit	Parts used
1.	Amorphophallus konjac	Araceae	Jangli awl	Herb	Underground
2.	Dioscorea alata	Dioscoreaceae	Dungkand	Climber	Underground part
3.	Dioscorea bulbifera	Dioscoreaceae	Gittikand	Creeper	Underground
4.	Ipomoea batatas	Convolvulaceae	sakarkand	creeper	Underground
5.	Zingiber officinale	Zingiberaceae	Adrak	Herb	Underground

Table 4
Plants with Edible leaves or leafy shoots

S.No.	Scientific Name	Family	Vernacular name	Habit	Parts Used
1.	Amaranthus spinosa	Amaranthaceae	Kattabhaji	Herb	Leaf
2.	Amaranthus viridis	Amaranthaceae	Adararkha	Herb	Leaf
3.	Alternanthera sessilis	Amaranthaceae	Gundru sag	Herb	Leaf
4.	Basella alba	Basellaceae	Poi	Climber	Leaf
5.	Brassica juncea	Brassicaceae	Sarso	Herb	Leaf
6.	Senna tora	Fabaceae	Chakora	Herb	Leaf
7.	Centella asiatica	Apiaceae	Bengsag	Herb	Leaf
8.	Corchorus capsularis	Malvaceae	chinch	Herb	Leaf
9.	Hibiscus sabdariffa	Malvaceae	Lalteppa	Herb	Leaf
10.	Hibiscus cannabinus	Malvaceae	Darangiteppa	Herb	Leaf
11.	Leucas aspera	Lamiaceae	Ghumasag	Herb	Leaf
12.	Limnophila repens	Scrophulariaceae	Muchrisag	Herb	Leaf
13.	Marsilea quadrifolia	Marsileaceae	Sunsunia	Herb	Leaf

Table 5
Plants bearing edible stem or shoot

S.No.	Scientific Name	Family	Vernacular name	Habit	Parts Used
1.	Bambusa bambos	Poaceae	Bas	Tree	Shoot
2.	Colocasia esculenta	Araceae	Jalboda	Herb	Shoot



CONCLUSION

This study highlights the significance of wild fruit species as a source of food compliments for Koraku tribals. The food value of many wild fruits compared well with domesticated popular fruits such as mango, banana, guava, papaya etc. Wild fruit plants can be included in agro and farm-forestry and reforestation programme, which have so far focused only on timber species. Wild fruit plantation not only improves food base for humans but also helps in sustaining wild animals particularly herbivore and bird population. It was also found that many endemic edible fruits are still unknown which are exploited in the study area. Yet, due to an increased population growth, over exploitation and depletion of biodiversity, there is a need to collect and conserve those species. In vitro multiplication of local plant

population can be tried and introduced in ecologically rich areas and botanical gardens to increase the accessibility of the species.

ACKNOWLEDGEMENT

The author is grateful to the Director and Head, and also to the staff of the Rapinat Herbarium and Centre for Molecular Systematics, St. Joseph's College (*Autonomous*), Tiruchirappalli, Tamilnadu. He is grateful to his Colleagues for their help and support. He extends his heartfelt thanks and gratitude to all informants who participated in this survey. He thanks UGC, New Delhi for financial support through Rajiv Gandhi National Fellowship.

REFERENCES

- Ehrlich PR, Ehrlich AH: The value of biodiversity. *AMBIO*, 1992, 21:219–226.
- Coe FG, Anderson GJ: Ethnobotany of the Garifuna of eastern Nicaragua. *Eco Bot*, 1996 50:71–107.
- Kaimowitz D, Douglas S: Conserving what and for whom? Why conservation should help meet basic human needs in the tropics. *Biotrop*, 2007,39:567–574.
- Schippmann U, Cunningham AB, Leaman DJ: Impact of cultivation and gathering of medicinal plants on biodiversity: Global trends and issues. In *Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries*. Rome: FAO; 2002.
- Gemedo-Dalle TB, Maass L, Isselstein J: Plant biodiversity and ethnobotany of Borana pastoralists in southern Oromia, Ethiopia. *Eco Bot*, 2005, 59:43–65.
- Shrestha PM, Dhillion SS: Diversity and traditional knowledge concerning wild food species in a locally managed forest in Nepal. *Agroforest Syst*, 2006,66:55–63.
- Teklehaymanot T, Giday M: Ethnobotanical study of wild edible plants of Kara and Kwegu semi-pastoralist people in Lower Omo River Valley, Debub Omo Zone, SNNPR Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 2010, 6:23.
- Ogle BM, Grivetti LE: Legacy of the chameleon edible wild plants in the Kingdom of Swaziland, South Africa. A cultural, ecological, nutritional study. Parts II-IV, species availability and dietary use, analysis by ecological zone. *Ecology of Food and Nutrition*, 1985, 17:1–30.
- Ali-Shtayeh MS, Jamous RM, Al-Shafie JH, Elgharabah WA, Kherfan FA, Qarariah KH, Khair IS, Soos IM, Musleh AA, Isa BA, Herzallah HM, Khlaif RB, Aiash SM, Swaiti GM, Abuzahra MA, Haj-Ali MM, Saifi NA, Azem HK, Nasrallah HA: Traditional knowledge of wild edible plants used in Palestine (Northern West Bank): a comparative study. *Journal of Ethnobiology and Ethnomedicine*, 2008,4:13.
- Balemie K, Kebebew F: Ethnobotanical study of wild edible plants in Derashe and Kucha Districts. South Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 2006,2:53.
- Misra S, Maikhuri RK, Kala CP, Rao KS, Saxena KG: Wild leafy vegetables: a study of their subsistence dietetic support to the inhabitants of Nanda Devi Biosphere Reserve. India. *Journal of Ethnobiology and Ethnomedicine*, 2008,4:15.
- N'danikou S, Achigan-Dako EG, Wong JLG: Eliciting local values of wild edible plants in Southern Bénin to identify priority species for conservation. *Eco Bot*, 2011, 65(4):381–395.
- Jha PK, Shrestha KK, Upadhyay MP, Stimart DP, Spooner DM: Plant genetic resources of Nepal: a guide for plant breeders of agricultural, horticultural and forestry crops. *Euphytica*, 1996, 87:189–210.
- Termote C, Van Damme P, Djailo BD: Eating from the wild: Turumbu, Mbole and Bali traditional knowledge on non-cultivated edible plants, District Tshopo, DR Congo. *Genet Resour Crop Evol*, 2011, 58:585–618.
- Shrestha KK, Rajbhandary S, Tiwari NN, Poudel RC, Uprety Y: Ethnobotany in Nepal: Review and perspectives. Kathmandu: WWF Nepal Program; 2004.
- Banerji ML: Some edible and medicinal plants from east Nepal. *J Bomb Nat Hist Soc*, 1955, 53:153–155.
- Shrestha I, Shrestha K: Some wild edible plants of Langtang National Park, Rasuwa District, Central Nepal. *Bulletin of Pure and Applied Science*, 2004, 23B (1):35–45.
- Bhattarai S, Chaudhary RP, Taylor RSL: Wild edible plants used by the people of Manang District, Central Nepal. *Ecology of Food and Nutrition*, 2009, 48(1):1–20.
- Haddad L, Oshaug A: How does the human rights perspective help to shape the food and nutrition policy research agenda? *Food Pol*, 1999,23:329–345.