International Journal of Academic Research
ISSN: 2348-7666; Vol.4, Issue-3(1), March, 2017
Impact Factor: 4.535; Email: drtvramana@yahoo.co.in

Wild edible plants of India – A review.

T. M. A. Niveditha, Department of Botany, Visakha Govt Degree College For Women, Visakhapatnam, Andhra Pradesh – 530017

Abstract: *Wild edibles are important NTFPs for tribes. According to the India State of Forest Report (ISFR) 2015, the total forest and tree cover is 79.42 million hectare, which is 24.16 percent of the total geographical area. Tribal population of India is 8.6 as per 2011 census. In India, the tribal people depend on forests for their livelihood. The tribal people are very close to nature and have hereditary traditional knowledge of consuming wild plants and plant parts viz., tuber, shoots, leaves, fruits etc. as a source offood. Although, these wild edible plants play an important role in food security, they are ignored. The primitive man through trial and error, has selected many wild edible plants, which are edible and subsequently domesticated them. The present paper reviewed on wild edible plants documented in different parts of India and their utilization by the tribes. Streamlining these wild edible plant species will provide food security. Wild edible are less susceptible to diseases, can be grown easily without application of pesticide. Ironically these plants are still unknown or less known to other parts of the world. The wild edible plant species will be popularized after phytochemical analysis and nutraceutical studies. Present study on review of Wild edible plant species will be helpful in pooling different types of edible plant species utilized by various tribes in different parts of India.*

Key words: NTFPs, Wild edibles, tribes, utilization, nutraceutical studies, popularized.

Introduction:

Wild edibles are important NTFPs for tribes. According to the India State of Forest Report (ISFR) 2015, the total forest and tree cover is 79.42 million hectare, which is 24.16 percent of the total geographical area. Tribal population of India is 8.6 as per 2011 census. In India, the tribal people depend on forests for their livelihood. The tribal people are very close to nature and have hereditary traditional knowledge of consuming wild plants and plant parts viz. tuber, shoots, leaves, fruits etc. as a source of food. Although, these wild edible plants play an important role in food security, they are ignored. Various tribal sects of India are repositories of rich knowledge on various uses of plant genetic resources (Khoshoo, 1991).Wild edible plants play a major role in meeting the nutritional requirement of the tribal population. Among the various kinds of plants, food plants received the earliest attention of mankind and reflect man's search for knowing more and more about the nutrient qualities of food plants. The primitive man through trial and error, has selected many wild edible plants, which are edible and subsequently domesticated them. Modern man neither domesticated the left over nor has he identified any new food plants inrecent times, which are widely acceptable; they have improved only a few crop plants. The present day wild edible plants are particularly useful during famine and similar scarcity situation. Even during normal times, wild plants provide materials of diet to the less advanced section of human community, often referred as tribals/adivasis in India who

generally inhabit hilly and other less accessible tracts in both doveloped and developing countries (Arora and Pandey, 1996). In India, it is estimated that about 800 species are consumed as wild edible plants, chiefly by the tribal people (Singh and Arora, 1978). The present paper reviewed on wild edible plants documented in different parts of India and their utilization by the tribes.

Materials and methods: Various journals and books from internet were used to study. Various publications dealing with wild edibles, ethnography and botany were surveyed. All information summarized in this review refers to use of wild edible plants within the boundaries of India, based on literature sources providing relevant information since 1990 onwards. For each publication, geographical area, number of plant species reported and tribes names where sources are available are given. All data were grouped in chronological order.

Wild edible plants – A review

The term "wild food" is used to describe all plant resources outside of agriculture areas that are harvested and collected for the purpose of human consumption in forests, savannah and other bush land areas. Wild foods are incorporated into the normal livelihood strategies of many rural people, shifting cultivation, continuous croppers or hunter gatherers (Bell, J. 1995). Indigenous knowledge of wild edible plants is important for sustaining utilization of those plant species (Jasmine *et al*, 2007).

Kar and Borthakur(2008) reported 57 species of wild plants used as vegetable by the Khabri tribe of khabri along the district of Assam.Out of 57 plant species 4 as fruits,3 as rhizome,3 as tubers,1 corm, 9 flower vegetables,1 stem pith, 1 stem vegetable ,21 leafy vegetable and 16 are shoot vegetable. 57 wild edible plants belonging to 33 families used by the Gujjar tribe of District Rajouri from Jammu & Kashmir. Mukesh Kumar et al reported 21 plant species belonging to 19 families being used by the tribals and rural communities from Odisha (Rashid *et al.*2008);

Khyade *et al*. 2009 studied a total of 31 plant species belonging to 23 families were reported from AkoleTahasil of Ahmednagar district, Maharashtra utilized by the tribes *viz*., Mahadev-koli, Thakars, Bhils and Ramoshies Amaranthaceae was the dominant family with 4 taxa; 151 species belonging to 86 genera spreading over 49 families in the Khasi tribes of Meghalaya to assess their horticultural importance (Jeeva , 2009). Sharma & Mishra, 2009 reported diversity ,utilization pattern and indigenous uses of 217 plant species belonging to 160 genera of 68 families including medicine(85 species), fuel(54 species),wild edible/food(86 species),fuel (54 species), fodder (71 species) religious(5 species) in and around a cement factory in Bilaspur district of Himachal Pradesh. Bandyopadhyay and Mukherjee (2009) reported 125 plant species belong to 102 genera under 54 families as wild edibles eaten by the ethnic people of Koch Bihar district of West Bengal state, on different occasions.

Prabha *et al.* (2010) enlisted 42 plant species belonging to 23 families consumed by the tribals *viz*., Malappandaram, Urali, Malaarayan, Ulladan, Malavedan, Malakuravaand other locals of Melghat area. Binu (2010)

reported a total of 41 plant species of wild edible plants used by the tribals in Pathanamthtta district,Kerala.Six tribal communities inhabitating the area are Malappandaram, Urali, Malaarayan, Ulladan, Malavedan, Malakurava. Choudhury *et al.*(2010) reported the form of eating 10 wild edible plants, phytochemicals present and their medicinal importance by the tribal people of all communities of Agartala and Khowai sub divisions of west Tripura district of Tripura.

Arinathan *et al.* (2011) reported 41 species of wild edible unripe fruits representing 28 genera distributed over 20 families eaten by Palliyars of Western Ghats, Tamil Nadu. Sasi *et al.* (2011) documented indigenous knowledge on 50 wild edible plant species belonging to 31 families under 43 genera from Kotagiri Hills a part of Nilgiri Biosphere ,Southern India byIrulas -People of the darkness and observed that the tribal communities of the study area fulfill their food deficiency by supplementing wild food plants in their daily diet; 152 plant species belonging to 95 genera and 39 families under three categories such as cultivated crops(72), semi domesticated plants(41) and wild plants(39) from East Siang,ArunachalPradesh,Eastern Himalaya (Yumanm, 2011).

Banik (2012) reported utilization of 107 wild edible plants used by the tribals of Bastar region, Chattissgarh).Among them 25 plants for root/tubers,33 for leaf importance,3 for nuts 7 for stems, 9 for flower. Bastar is a home land of various tribal groups like Abujh, Maria, Muria, Bison horn maria, Dhurwa, Dorla, Bhatra, Halba; ethnobotanical studies on 74 wild edible plants belong to 58 genera and 41 families used by Irula tribes of PillurValley, Coimbatore district, Tamil Nadu, (Rasingam, 2012); 71 wild edible plant species belonging to 42 families consumed by the Garo tribe of Nokrek Biosphere Reserve in Meghalaya including rhizome, corm, tuber 8 species, bark 1 species, stem pith, tender shoots, fronds of 9 species, leaves and twigs of 21 species, flowers, flower buds ,inflorescences of 2 species, fruits, pods of 25 species; seeds, nuts, skin kernals of 3 species and whole part of 2 plant species (Singh *et al*. 2012). Gam & Gam (2012) documented 20 plant species habitually use in their food items particularly in non vegetarian diets by the Mising tribe of Assam and also observed that the use of some of these plant species is pertaining to their religious belief and festivals also.

Esther *et al*.(2013) reported 84 wild edible plants belonging to 36 families are being used by the Zou tribe in Manipur. Out of these 84 species, 70 species are used as vegetables & food, 13 species are used as spices and condiments and 1 species *Dioscorea sativa* is used as famine food. Kumar *et al*. (2013) reviewed 30 edible leafy vegetable available in South India along with their pharmacological benefits. Kumar *et al.* (2013) reported 21 wild edible plant species belonging to 19 families with their parts used by local as well as tribal people inhabitating in rural areas of Odisha. Ramachandran and Vani (2013) reported a total of 123 ethnobotanical species used by Paniyas and Kurumbas of Western Nilgiris, Tamil Nadu in which 72 are wild edible plants belonging to 37 families. Out of 72 plant species, 56 were collected from wild and 16 from semi wild/cultivated species. Rao and Reddi (2013) reported a total of 24 plant species involving 19 genera and 18 families

consumed by the primitive tribal groups *viz*., Gadaba, Khond, Porja and Savara from Visakhapatnam district, Andhra Pradesh. Misra and Misra (2013) reported 106 leafy vegetable plant species belong to 88 genera of 49 families from South Odisha.Major ethnic groups are, Bhumia, Bonda, DangariaKandha, Didayi, Gadaba, Kandha, Koya, KutiKandha, Langia-Saura, Paika, Paraja, Sabara, Saura, and other tribes inhabit these districts. The tribal and rural poor people consume many of the wild leafy vegetables available in their surroundings and sometimes during food scarcity. Vaishali and Jadhav (2013) reported 9 non cultivated greens leafy vegetables being used by the rural people and their medicinal use from various regions of Kolhapur District of Maharashtra.

Chauhan *et al*. (2014)reported 51 leafy vegetables being eaten by the tribal and local people of Chattisgarh. Singh and Kumar (2014) reported 17 wild edible aquatic and marshy plants traditionally used in various forms by the Munda tribe of District Khunti,Jharkhand; 31 wild edible plant species from 19 families being used by the tribals from Kupwara,Jammu 7 Kashmir (Mir, 2014); 105 wild edibles being used by the elder generation of tribal and and rural population for sustenance from old Mysore district and categorized into whole plant (04), root (13), Bark (01), stem(01), leaf(20), flower(07), fruit(55), seed(07),sap (01) and gum (03). Various group of tribals are found in the surroundings are Jenukuruba, Bettakuruba, Paniya, Panjari, Yeravas and Soligas (Nandini and Siddamallayya ,2014). Prasanth Kumar and Siddamallayya (2014) documented 29 wild tuberous plant species belonging to 24 genera of 15 families with their mode of consumption and medicinal uses from other local villagers Hassan district, Karnataka. Sanyasi Rao *e tal*. (2014) reported 55 indigenous food plants viz., 24 species as leafy vegetables, 21 species for fruits, 6 species for tubers,4 species for tender shoots, 2 each for seeds and flowers from Dumbriguda area of Visakhapatnam commonly consumed by the tribal communities . The major tribal communities are Nookadora, Kotiya, Kondakammari, Bagatha, Kondh, Muliya, Kondadora and Valmeeki. Sarvalingam *et al.* (2014) reported 68 wild edible plants belonging to 56 genera and 39 families from Maruthamalai Hills,Coimbathore district consumed by the Irulas. Among them rhizomes,roots and tubers of 14 plant species, fruits of 35 plant species leaves of 11 plant species ,seeds and arils of 7 plant species stem pith of 1 plant species. Satyavathi & Janardhan (2014) reported 30 wild edible fruits used by the Badagas of Nilgiri district. Singh (2014) documented fifty wild leafy vegetables belong to 31 families, 38 genera and 50 species from nine districts of Jharkhand used by the local tribal and other communities. Panda (2014) documented 86 wild edible plants belong to 51 families as livelihood used in the interior of Kendrapara district of Odisha state.

Patale Chandrakumar *et al.*(2015) reported a total 80 wild edible plant species belong to 69 genera and 38 families used by Gond, Halba and Kawartribes of Gondia district, Maharashtra. Pradhan and Tamang (2015) reported 26 species of wild leafy vegetables (WLV) used by Nepali, Bhutia and Lepcha ethnic communities from Sikkim. Saikia (2015) reported 51 wild vegetable plants from Dhemaji District of Assam with their medicinal uses.

Uses of wild and semi-wild *Citrus* species viz., *Citrus hystrix., Citrus latipes* and *Citrus indica* by the Khasi and Garo tribes of Meghalaya (Anamika*et al*.2016); ten countries with the largest wild collection areas in 2014 are Finland. Zambia, India, Namibia, Russian Federation, Romania, Brazil, China, Tajikistan and Bolivia (Frick and Bonn, 2016). Pradeep*et al*. (2016) reported 41 species of wild edible plants (WEPs) used byKonyak tribe in Mon district, Nagaland. Jyotsna and Katewa (2016) reported a total of 46 plant species belongs to 27 families from Southern Rajasthan utilized by tribes *viz*., Bhil, Meena, Damor, Garasia and Kathodi,

Conclusion:

Ethnic man depends on nature and utilizes different plant species for food, medicine and various domestic needs. Present study on review of Wild edible plant species will be helpful in pooling different types of edible plant species utilized by various tribes in different parts of India. This will be very useful for further studies such as photochemical analysis of wild edibles and nutraceutical potentialities. Present review on documentation, preservation of orally transmitted traditional knowledge will be a mother load for future generation. Streamlining these wild edible plant species will provide food security. Wild edible are less susceptible to diseases, can be grown easily without application of pesticide. Ironically these plants are still unknown or less known to other parts of the world. The wild edible plant species will be popularized after phytochemical analysis and nutraceutical studies. Then we can achieve Hippocrates quote i. e "Everyone has a doctor in him or her; we just have to help it in its work. The natural healing force within each one of us is the greatest force in getting well. Our food should be our medicine. Our medicine should be our food. But to eat when you are sick, is to feed your sickness". The FAO recognizes that nutrition and biodiversity converge towards a common goal of food safety and sustainable development and that wild species play a key role in global nutrition safety (FAO 2009). The nutritional potential of the wild edible plants has not hitherto been investigated to the extent it deserves. Therefore the present study on review of wild edibles hopefully useful to study in this regard.

References

1. Angami, A., Gajurel, P. R., Rethy, P. Singh, B and Kalita, S. K (2006). Status and potential of wild edible plants of Arunachal Pradesh.Indian J. Trad.Knowl.5: 541- 550.
2. Arinathan, V., Mohan, V. R. and Maruthupandian (2011).Wild edible unripe fruits used by the Pelliyars of Western Ghats,Tamil Nadu. J. Non-Timber Forest Products 18: 149-152.
3. Arinathan, V., Mohan, V. R., John, De B. A. and Murugan, C (2007). Wild edibles used by Palliyars of the Western Ghats Tamil Nadu. Indian J. Trad.Knowl.6: 163-168.
4. Arora R K & Pandey Anjula, Wild edible plants of India: Diversity, Conservation and Use, (National Bureau of Plant Genetic Resources, New Delhi), 1996, 1.

5. Bandyopadhyay, S. and Mukherjee, S. K (2009).Wild edible plants of Koch Bihar district, West Bengal.Nat. Prod. Radiance 8: 64-72.
6. Banik, A. (2012). Identification and utilization of wild edible plants used by the tribals of Bastarregion (Chhattisgarh).*Life Sciences Leaflets* 12:12-29
7. Barua, U., Hore, D. K. and Sharma, R (2007).Wild edible plants of Majuli Island and Darrang districts of Assam.Indian J.Trad.Knowl.6: 191-194.
8. Bell,J. 1995.The hidden harvest .In seedling.*The quarterly News letter of Genetic Resources Action International*.
9. Binu, S (2010). Wild edible plants used by the tribals in Pathanamthitta district, Kerala. Indian J. Trad.Knowl.9: 309-312.
10. Cavender,A. 2006. Folk medicinal uses of plat foods in SouthenAppalachia,UnitedStates. *Journal of Ethanopharmacology* 108: 74-84.
11. Chauhan,D., Shrivastava, A. K. and Suneeta, P (2014).Diversity of leafy vegetables used by tribal peoples of Chhattisgarh, India. Int. J. Cur. Microbiol. App. Sci. 3: 611-622.
12. Choudhury, R., DattaChoudhury, M., De.B. and Paul, S. B (2010).Importance of certain tribal edible plants of Tripura.Indian J. Trad.Knowl. 9: 300-302.
13. Esther, G. H.,Thoudam, N. S. and Ginzamang, T. Z (2013). Wild Edible Plants used by the Zou Tribe in Manipur, India. Int. J. Sci. Res. Publ. 3: 1-8.
14. Food and Agriculture Organization of the UnitedNations (FAO).2004.The state of food insecurity in the world. Monnitoring the progress towards the world food summit and Millenium development goals.Annual report.Rome.
15. Food and Agriculture Organization of the UnitedNations (FAO). (2009). The state of food insecurity in the world. Rome.
16. Frick and Bonn (2016).The World of Organic Agriculture. Research Institute of Organic Agriculture (*FiBL)* Switzerland &International Federation of Organic Agriculture Movement, (*IFOAM*,Germany): 79.
17. Gam, N. K. and Gam, J (2012). Studies on some wild plant species used by the Mising (Miri) tribe of Assam in their Traditional food items. Int. J. Pharma Sci. Res. 3: 543-547.
18. Haridasan, K., Bhuyan, L. R. & Deori, M. L. 1990. Wild edible plants of Arunachal Pradesh. *Arunachal Forest News* 8(1 &2): 7.
19. Heywood,V & Skoula,M. 1999.The MEDUSA network.Conservation and sustainable use of wild plants of the Mediterranean region.InJ.Janick.(Ed).Perspectiv es on new crops and new uses:148-151).Alexandria,VA.ASHS.
20. Jasmine,T.S.,Jeeva,S.,Febreena,G .L.,Mishra,B.P.,&Laloo,R.C.(2007).Wild edible plants of Meghalaya,North- East India.*Natural Products Radiance* 6: 410-426.

21. Jeeva, S (2009). Horticultural potential of wild edible fruits used by the Khasi tribes of Meghalaya. J. Hort. Forestry 1: 182-192.
22. Jyotsna. S and Katewa.S (2016).Documentation of folk knowledge on underutilized wild edible plants of Southern Rajasthan. Ind. J. Nat. Prod. Res. 7: 169-175.
23. Kar, A (2004). Common wild vegetables of Aka tribe of Arunachal Pradesh.Indian J. Trad.Knowl.3: 305-313.
24. Kar, A. and Borthakur, S. K (2007). Wild vegetables sold in local markets of KarbiAnglong, Assam. Indian J. Trad.Knowl.6: 169-172.
25. Kar, A. and Borthakur, S. K (2008). Wild vegetables of Karbi-Anglongdistrict.Assam. Nat. Prod. Radiance 7: 448-460.
26. Kayang, H (2007). Tribal knowledge on wild edible plants of Meghalaya, North east India.Indian J. Trad.Knowl.6: 177-181.
27. Khyade, M. S., Kolhe, S. R. and Deshmukh, B. S (2009). Wild edible plants used by the tribes of AkoleTahasil of Ahmednagar District, (MS), India. Ethnobot. Leaflets13: 1328-36.
28. Khoshoo T N (1991). Conservation of biodiversity in biosphere, In: Indian Geosphere Biosphere Programme, Some aspects, National Academy of Sciences, Allahabad, India: 178-233.
29. Kristensen, M., &Balslev,H. (2003).Perceptions, use and availability of woody plants among the Gourounsi in Burkina Faso. *Biodiversity and conservation* 12: 1715-1739.
30. Kumar, C. K. A., Sree, M. S. D., Joshna, A., Lakshmi, S. M. and Kumar, D. S (2013).A review on South Indian Leafy Vegetables. Global Trends Pharmaceutical Sci. 4: 1248-1256.
31. Kumar, M., Husaini, S.A ., Uddin, Q., Aminuddin., Kumar, K and Samiulla, L.2013. Ethnobotanical study of the wild edible plants from Odisha, India. *Life Sciences Leaflets*:13-20.
32. Kumari, B. and Kumar, S (2000).A checklist of some leafy vegetables used by Tribals in and around Ranchi, Jharkhand. Zoos Print 16: 442-444.
33. Ladio, A. H. and Lozada, M (2004). Patterns of use and knowledge of wild edible plants in distinct ecological environments: Acase study of a Mapuchecommunity from Northwestern Patagonia. Biodiversity and Conservation 13: 1153-1173.
34. Mir, M. Y (2014). Documentation and ethnobotanical survey of wild edible plants used by the tribalsof Kupwara, J & K, India. Int. J. Herb. Med. 2: 11-18.
35. Misra, S. and Misra, M. K (2013).Leafy vegetable plants of South Odisha, India. Intl. J. Agric. Food Sci. 3: 131-137.
36. Nandini, N. and Shiddamallayya, N (2014).Wild edible plants of old Mysore district, Karnataka, India. Plant Sciences Feed. 4: 28-32.
37. Neog, M. & Mohan, N. K. 1994. Minor and less-known fruits of Assam. *Indian Horticulture* 39:28-31.

38. Orech, F.O., Hansen, J. A &Friss, H. (2007). Ethanoecology of traditional leafy vegetables of the Luo people of Bondodistrict,Western Kenya. International Journal of food science and Nutrition 58(7): 522-530.
39. Panda, T (2014).Traditional knowledge on wild edible plants as livelihood food in Odisha. Indian J of Biol. Earth Sci. 4: 144-159.
40. Patale Chandrakumar, K., Nasare Praveenkumar, N., NarkhedeSushama, D(2015).Ethnobotanical studies on wild edible plants of Gond, Halba and Kawar tribes of SalekasaTaluka, Gondia district, Maharashtra State. Int. Res. J. Pharm. 6: 512-518.
41. Patiri, B. and Borah, A (Eds.) (2007). Wild Edible Plants of Assam.Published by the Director Forest Communication, Forest Department, Assam.Geetakhi Printers and Publishers, Zoo-Road Tiniali, Guwahati.
42. Pieroni,A., Houlihan, L., Ansari, N., Hussain,B., &Aslam, S. (2007). Medicinal perceptions of vegetables traditionally consumed by South- Asian migrants living in Bradford, Northern England. Journal of Ethanopharmacology 113: 100-110.
43. Pimentel, D., Nair, M, M., Buck, L., Pimentel, M., 7 Kamil, J. (1997). The value of forests for world food security.Human Ecology 25(1): 91-120.
44. Prabha, Y. B., Vishal, R. M. andKshirsagar, P. P (2010). Documentation of Wild Edible Plants of Melghat Forest, Dist. Amaravati, Maharashtra State, India.Ethnobot. Leaflets 14: 751-58.
45. Pradhan, S. and Tamang, J. P (2015). Ethnobiology of wild leafy vegetables of Sikkim.Indian J. Trad.Knowl. 14: 290-297.
46. Pradheep, K., Soyimchiten., Pandey, A. and Bhatt, K. C (2016). Wild edible plants used by Konyak tribe in Mon district of Nagaland: Survey and inventorisation. Indian J. Nat. Prod.Resour. 7: 74-81.
47. Prasant Kumar, G. M. and Shiddamallayya, N (2014). Documentation of wild Leafy vegetables of Hassan District, Karnataka.Int. J. Pure Appl. Biosci. 2: 202-208.
48. Rajasab, A. H. and Isaq.M (2004).Documentation of folk knowledge on edible wild plants of North Karnataka.Indian J. Trad.Knowl.3: 419-429.
49. Ramachandran, V. S (2007). Wild edible plants of the Anamalais, Coimbatore district Western Ghats, Tamil Nadu. Indian J. Trad.Knowl.6: 173-176.
50. Ramachandran,V. S. and Vani, C. U (2013). Knowledge and uses of wild edible Plants by Paniyas and Kurumbas of Western Nilgiris, Tamil Nadu.Indian J. Nat. Prod.Resour. 4: 412-418.
51. Rao, J. K. and Reddi, T. V. V. S (2013). Ethanobotany of common wild foods of primitive tribal groups of Visakhapatnam district, Andhra Pradesh. J. Non-Timber Forest Products 20: 291-294.
52. Rashid, A., Anand, V. K. and Serwar, J (2008). Less known wild edible plants used by the

Gujjar tribe of district Rajouri, Jammu and Kashmir State-India. Int. J. Bot.4: 219-224.

53. Rasingam, L (2012). Ethnobotanical studies on the wild edible plants of Irula tribes of PillurValley, Coimbatore district, Tamil Nadu, India. Asian Pac. J. Trop. Biomed. 2: S1493-S1497.
54. Reddy, K. N., Pattanaik. C., Reddy, C. S, Raju, V. S (2007). Traditional knowledge on wild food plants in Andhra Pradesh. Indian J. Trad. Knowl. 6: 223-229.
55. Saikia, M (2015). Wild edible vegetables consumed by Assamese people of Dhemaji District of Assam, NE India and their medicinal values. Arch. Appl. Sci. Res. 7: 102-109.
56. Samati, H. 2004. Kitchen garden plants of Pnar tribe in Jaintia Hills district, Meghalaya. *Ethnobotany*16 (1 & 2):125-130.
57. Sanyasi Rao, M. L., Yesudas, S. and Kiran, S (2014). Indigenous plant foods which are commonly consumed by the tribal communities in Dumbriguda area of Visakhapatnam District, Andhra Pradesh, India.Biolife 2(3): 866-875.
58. Sarvalingam.A., Rajendran, A. and Sivalingam, R (2014).Wild edible plant species used by the Irulas of Maruthamalai Hills, Southern Western Ghats, Coimbatore, Tamil Nadu.Indian J. Nat.Prod.Resour.5: 198-201.
59. Sasi, R.,Rajendran, A. and Maharajan, M (2011).Wild edible plant diversity of Kotagiri Hills-a part of Nilgiri Biosphere Reserve, Southern India. J. Res. Biol. 2: 80-87.
60. Sathyavathi, R. and Janardhanan, K (2014).Wild edible fruits used by Badagas of Nilgiri District, Western Ghats, Tamil Nadu, India. J. Med. Plant Res. 8: 128-132.
61. Scherrer, A. M., Motti, R. and Weckerle, C.S (2005).Traditional plants use in areas of Monte Vesole and Ascea, Cilento National park(Campania, Southern Italy).*Journal of Ethanopharmacology*. 97: 129-143.
62. Sharma , P and Mishra, N. K. (2009). Diversity, utilization pattern and indigenous uses of plants in and around a cement factory in Bilaspur district of Himachal Pradesh, North-Western Himalaya. Journal Biological Forum. An International Journal, 1(2):78-80.
63. Singh H B and Arora R K, Wild Edible Plants of India, Indian Council of Agricultural Research (ICAR), New Delhi, 1978.
64. Singh, B., Sinha, B. K., Phukan, S. J., Borthakur, S. K. and Singh, V. N (2012). Wild edible plants used by Garo tribes of Nokrek Biosphere Reserve in Meghalaya.Indian J. Trad. Knowl. 11: 166-171.
65. Singh, G. and Kumar, J (2014).Studies on Indigenous Traditional knowledge of some aquatic and marshy wild edible plants used by the Munda tribe of District Kunti, Jharkhand, India.Int. J. Bioassays 3: 1738-1743.
66. Singh, L. R. (2014). Food security through wild leafy

vegetables in Chotanagpur Plateau, Jharkhand. Int. J. Res. Envi. Sci. Tech.4:114-118.

67. Sinha, R. and Lakra, V (2005).Wild tribal food plant of Orissa.Indian J. Trad.Knowl.4: 246-252.
68. Sinha, R. and Lakra, V (2007). Edible weeds of tribals of Jharkhand, Orissa and West Bengal.Indian J. Trad. Knowl. 6: 217-222.
69. Sundriyal, M., Sundriyal, R. C. and Sharma, E (2004).Dietary use of wild plant resources in the Sikkim, Himalaya, India.Econ.Bot. 58: 626-638.
70. Vaishali, S. K. and Jadhav, V. D(2013).Traditional Leafy Vegetables: A Future Herbal Medicine. Intl. J. Agric. Food Sci. 3: 56-58.
71. Yesodharan, K. and Sujana, K. A. (2007). Wild edible plants Traditionally used by the tribes in the Parambikulam, Wild life sanctuary, Kerala, India. Nat. Prod. Radiance 6: 74-80.Yumnam, J. Y., Bhuyan, S. I., Khan,M. L and Tripathi, O. P (2011). Agro-diversity of East Siang-Arunachal Pradesh, Eastern Himalaya. Asian J. Agric. Sci. 3: 317-326.