Journal of Pharmacognosy and Phytochemistry
Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; SP3: 440-442

Srinivasa V
Department of vegetable Science,
College of Horticulture,
Mudigere, Karnataka, India

Devaraju
Department of vegetable Science,
College of Horticulture,
Mudigere, Karnataka, India

Akshay Angadi
Department of vegetable Science,
College of Horticulture,
Mudigere, Karnataka, India

Correspondence
Srinivasa V
Department of vegetable Science,
College of Horticulture,
Mudigere, Karnataka, India

**National conference on "Conservation, Cultivation and Utilization of medicinal and Aromatic plants"
(College of Horticulture, Mudigere Karnataka, 2018)**

Survey on underexploited vegetables and their medicinal importance in Chikamagalur district, Karnataka, India

Srinivasa V, Devaraju and Akshay Angadi

Abstract
A survey was conducted in the rural and tribal areas of Chikmagalur district, Karnataka during 2016-17 for documentation of underexploited, non-conventional, traditional and indigenous wild vegetables for further studies leading to sustainable utilization of these resources to overcome malnutrition in vegetarian diet. During present study 21 species belonging to 16 families have been documented. *Coccinia indica*, *Moringa oliefera*, *Amaranthus spinosus* and *Amaranthus virdis* are the most commonly grown vegetables. Leaves and young stem are used in majority of the cases.

Keywords: Wild vegetables, rural communities, Chikmagalur district, Karnataka.

1. Introduction
In rural settlements where vegetable cultivation is not practiced and market supplies are not organized, local inhabitants depends on indigenous vegetables either cultivated by themselves or collected from wild (Mishra *et al*., 2008) [13]. The traditional knowledge about indigenous wild vegetables is largely transmitted by oral tradition from generation to generation without any written record. Such practices are still prevalent among rural and tribal communities in many parts of the world (Mishra *et al*., 2008; Binu, 2010 and Bhogaonkar *et al.*, 2010) [13]. The primitive men, through trial and error, have selected many wild edible plants and subsequently domesticated them (Kar, 2004) [10]. However, many wild vegetables traditionally consumed by local communities are underutilized. The nutritional value of these wild vegetables is high in comparison to commonly cultivated vegetables and they also have medicinal properties (Orech *et al.*, 2007). The wild vegetables are an important source for the supplementation of micronutrients in vegetarian diets (Agate *et al.*, 2000 and Odhav *et al.*, 2007) [16]. Survey of rural and tribal areas for documentation of underutilized wild vegetables is the first step in making suitable strategies for the conservation and sustainable utilization of these resources. Perusal of literatures reveals that Chikamagalur district is not studied for documenting underutilized wild vegetables. Keeping above views in mind present study was proposed to highlight the wild vegetables used by the rural communities.
Indians are forerunners in utilizing plant resources for their basic necessities and sustenance. Though plants have been used as a source of food, fodder, shelter, clothing, medicine and a variety of useful commodities from ancient time, the value of wild edible vegetables in food security has not been given sufficient attention in India (Reddy *et al*., 2007) [18]. In rural settlements where vegetable cultivation is not practiced and market supplies are not organized, local inhabitants depends on indigenous vegetables either cultivated by themselves or collected from wild (Mishra *et al.*, 2008) [13].

2. Material and methods
Chikamagaluru is located between 13.3153^0 N and 75.7754^0 E geographical limits at an average elevation of 1090 M. It is situated at Western Ghats of Karnataka. Lot of biodiversity with respect to plant species is observed. Survey of rural areas of Chikmagalur district, Karnataka was conducted during 2016-2017 to collect information regarding wild vegetables and voucher specimen. Prior to survey, a questionnaire was designed and pre-tested with five

informants to find out its suitability for present study and modified according to response of informants. Information's regarding the local names of plant species, growth forms, part (s) used, availability in natural resources and conservation needs and medicinal values were carefully recorded. Methods of Martin (1995) [12] were followed during the present study.

3. Results and discussion

Results are given in Table 1. Twenty one wild plant species belonging to 16 families were found to be used as vegetables by the rural and tribal community of Chikamagalur district, Karnataka, India. Solanaceae and amaranthaceae are the highly represented families. Various Parts of *Basella alba*, *Ipomoea aquatica*, *Polygonum glabrum*, and *Solanum incanum* are reported. *Coccinea indica* the most common and popularly used vegetable followed by *Ipomoea aquatica* and *Amaranthus spinosus* in the study area (Table 1). Leaves and young stem are used in majority of the cases followed by fruits and tubers. Majority of the vegetable in the study area are herbs.

Generally wild vegetables are used within one or two days after collection except, tubers and bulbils which are stored for longer duration. According to informants vegetables should not be collected from roadsides, near polluted water bodies and should be free from insect pest and diseases. This view of informants can be justified on the basis of studies which show that polluted habitats reduce the quality and quantity of chemical constituents as well as accumulate toxic substances in plant parts used as vegetable (Kamal *et al*., 2010; Rahman *et al*., 2010) [8]. According to respondents use of green vegetables and tubers and bulbs increases the quantity of blood and make the person healthy; it means they are rich in iron and starch respectively. Nutritional analysis of these vegetables will be an important step for the identification of nutritionally important vegetable species for domestication and cultivation to fully utilize these natural resources. Analysis of data revealed that elder population have more knowledge about the usages of wild vegetables, whereas, the younger generation have very little interest in the wild vegetables. It is necessary to educate the younger generation about the nutritional value and use of the wild vegetables.

4. Conclusion

Consumption of wild plants is one of the strategies, adopted by the local people for sustenance, is intrinsically linked to their strong traditional and cultural system and is inseparable. The indigenous communities continuously include wild edibles to their daily food intake and sales from the surplus add to their income. or two days after collection except, tubers and bulbils which are stored for longer duration. Hither conservation and propagation studies need to be conducted in these vegetable.

Table 1: Underutilized indigenous wild vegetables of Chikmagalur district, Karnataka, India

Sl.no	Botanical name	Vernacular name	Family	Plant parts used	Growth form
1	*Amaranthus virdis*	Harive soppu, dantu	Amaranthaceae	Leaves	Herb
2	*Alternathera sessilis*	Hongane soppu	Amaranthaceae	Leaves, tender shoots	Herb
3	*Callicarpa tomentosa*	Kenjige, aarathi soppu	Verbenaceae	Leaves	Herb
4	*Amorphophallus companulatus*	Ane padada genasu	Aracaceae	Young tender leaves	Herb
5	*Capsicum frutescens*	Hakki kannina menasina kai	Solanaceae	Tender leaves and fruits	Herb
6	*Amaranthus spinosus*	Mullu dantu, mullu keene soppu	Amaranthaceae	Leaves	Herb
7	*Basella alba*	Basale soppu	Basellaceae	leaves	Herb
8	*Portulaca oleraceae*	Nela basale	Portulacaceae	Leaves	
9	*Solanum nigrum*	Ganike soppu, garden night shade	Solanacae	Fruits	Herb
10	*Centella asiatica*	Brahmi	Apiaceae	Leaves and young stem	Herb
11	*Ipomea aquatica*	Neeru humba	convolulaceae	Leaf and young stem	Herb
12	*Cassia tora*	chagate	Caesalpinaceae	Leaves	Herb
13	*Colocassia esculenta*	Kesu soppu	Araceae	Leaves, tubers, root, stem	Herb
14	*Solanum incanum*	Chande	Solanaceae	Fruit	Herb
15	*Dioscorea alata*	Noorele genasu, hennu genasu	Dioscoraceae	Tuber and bulbils	Climber
16	*Coccinia indica*	Toned	Cucurbitaceae	fruit	Climber
17	*Moringa olifera*	Nugge kayi	Moringaceae	Fruit, leaves, flowers	Perennial tree
18	*Dioscorea bulbifera*	Heggenasu, ambli genasu, kunta genasu	Dioscoraceae	Tuber and bulbils	Climber
19	*Leucas aspera*	Tumbe gida	Laminaceae	Young leaves	Herb
20	*Oxalis corniculata*	Pullampurchi	Oxalidaceae	Young leaves and stem	Herb
21	*Physalish minima*	Gadde hannu	Solanaceae	Young leaves	Herb

Table 2: underexploited vegetable with their medicinal uses

Sl.no	Name	Uses
1	*Alternanthera sessilis*	To relieve headache and dizziness. Leaf sap is sniffed up to the nose to treat neuralgia, to treat snake bites and to stop the vomiting of blood. Wounds, cough, bronchitis asthama piles and neutralize acidity
2	*Callicarpa tomentosa*	To treat fever, lever diseases apthous ulcers
3		
4	*Amaranthus spinosus*	Astringent, diaphoretic, diuretic, emullient febrifuge, internal bleeding, diarrhea, nosebleed and wounds.
5	*Amaranthus virdis*	Leaves stimulates urine production, purgative properties, dysentery, swelling, removing toxins from blood, and inflammation.
6	*Amorphophallus companulatus*	Root is carminative, restorative, stomachic and tonic, acrid stimulant and expectorant
7	*Basella alba*	Treatment of burns, constipution, anticancer, ulcers, boilsand antiaging properties.
8	*Portulaca oleraceae*	Strengthen immune system, lowers blood pressure, cures cardiac diseses.

9	*Solanum nigrum*	Diuretic, diaphoretic, anodyne, expectorant alternative.
10	*Centella asiatica*	Wound healing, cytotoxic, antitumour, radioprotective, and antidepressant
11	*Ipomea aquatica*	To cure skin diseases, constipution, liver problems, promote relaxation and sleep
12	*Dioscorea alata*	Laxative, vermifuge, leprosy, tumours and inflamed hemorrhoids.
13	*Coccinia indica*	Antidiabetic, respiratory ailements, reduce fever and cooling effect.
14	*Moringa olifera*	Antitumour, antipyretic, antiepilepetic, antiinflamatory, antiulcer, antidiabetic, antispasmodic and antibacterial.
15	*Dioscorea bulbifera*	Laxative, vermifuge, leprosy, tumours and inflamed hemorrhoids.
14	*Leucas aspera*	Wound healing, sores, treatment of mild fevers, rheumatism and snake bite.
15	*Oxalis corniculata*	Anthelminitic, antiphlogisticastringent, depurative, diuretic, febrifuge, stomachic and styptic.
16	*Physalish minima*	Diuretic, treating dropsy and urinary tract disorders, gout and gonorrhea.

5. References

1. Dovie DBK, Shackleton CM, Witkowski ETF. Conceptualizing the human use of wild edible herbs for conservation in South African Communal Areas. J Env. Manage. 2007; 84:146-156.
2. Duthie JF. Flora of upper Gangetic plain and of the adjacent Shiwalic and SubHimalayan Tract. Botanical Survey of India, Calcutta, 1960.
3. Grivetti LE, Ogle VM. Value of traditional food in meeting macro and micronutrient needs: The wild plant connection. Nutr. Res. Rev. 2000; 13:31-46.
4. Haridarshan K, Bhuyan LR, Deori ML. Wild edible plants of Arunanchal Pradesh. Arunanchal Forest News 1990; 8:7-12.
5. Jain SK, Rao RR. Handbook of field and herbarium methods. Today and Tomorrow printers and publishers, New Delhi, 1967.
6. Jansen VRWS, Venter SL, Netschluvhi TH, Heever E, van den H, Vorster J *et al*. Role of indigenous leafy vegetables in combating hunger and malnutrition. South Afr. J Bot. 2004; 70:52-59.
7. Kala CP. Prioritization of cultivated and wild vegetables by the local people in the Uttaranchal hills of Indian Himalaya. Indian J Trad. Knowledge. 2007; 6:239-243.
8. Kamal A, Ahmad IZ, Islam H. Effects of cadmium toxicity on antioxidative defence system of Nigella sativa in different phases of seed germination. Fourth International Conference on Plants and Environmental Pollution. CSIR-National Botanical Research Institute, Lucknow, Utter Pradesh, India. 2010, 94. (Abstr.).
9. Kanjilal PC. Forest flora of Pilibhit, Oudha, Gorakhpur and Bundelkhand. Govt. Printing Press, Allahabad, 1933.
10. Kar A. Common wild vegetables of Aka tribe of Arunanchal Pradesh. Indian J Trad. Knowledge. 2004; 3:305-313.
11. Maikhuri RK, Rao KS, Saxena KG. Bio prospecting of wild edibles for rural development in central Himalaya. Mount. Res. Develop. 2004; 24:110-113.
12. Martin GJ. Ethnobotany: A people and plant conservation manual. Chapman and Hall, London, 1995.
13. Mishra 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. J Ethnobio. Ethnomed. 2008; 4:15.
14. Narayanan MKR, Kumar NA. Gendered knowledge and changing trends in utilization of wild edible greens in Western Ghats, India. Indian J Trad. Knowledge. 2007; 6:204-216.
15. Nordeid MBA, Hatloy M, Folling E Lied, Oshoug A. Nutrient composition and nutritional importance of green leaves and wild foods in an agricultural district, Koutiala, in Sothern Mali. Internat. J Food Sci. Nutr. 1996; 47:455-468.
16. Odhav B, Beekrum S, Akula US, Baijnath H. Preliminary assessment of nutritional value of traditional leafy vegetables in Kwazulu-Natal, South Africa. J Food Comp. Anal. 2007; 20:430-435.
17. Ogoye-Ndegwa C, Aagard-Hensen J. Traditional gathering of wild vegetables among the Luo of Western Kenya - A nutritional anthropology project. J Ecol. Food Nutr. 2003; 42:69-89.
18. Reddy KN, Pattanaik C, Reddy CS, Raju VS. Traditional knowledge on wild food plants in Andhra Pradesh, India. Indian J Trad. Knowledge. 2007; 6:223-229.
19. Samant SS, Dhar U. Diversity, Endemism and Economic Potential of wild edible plants of Indian Himalaya. Internat. J Sustain. Develop. World Ecol. 1997; 4:179-191.
20. Sinha R, Lakara V. Wild vegetable food plants of Orissa. Indian J Trad. Knowledge. 2005; 4:246-252.
21. Sundriyal M, Sundriyal RC. Underutilized edible plants of Sikkim Himalaya: Need for domestication. Curr. Sci. 2003; 85:731-736.
22. Sundriyal M, Sundriyal RC. Wild edible plants of the Sikkim Himalaya: Nutritive values of selected species. Econ. Bot. 2001; 55:377-390.