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A Review on Curing of Onions Traditional gathering of Wild Vegetables used by local inhabitants of Theni district, Tamilnadu, India

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Abstract

An ethnobotanical inventory was conducted in the rural areas of Theni district, Tamilnadu, India, during 2013-2014 following standard ethnobotanical methods 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 19 species belonging to 18 genus and 15 families have been documented. *Chenopodium album* is the most common and popularly used wild vegetable followed by *Ipomoea aquatica* and *Coccinea grandis* in the study area. Seven species are reported as wild vegetable for the first time in India. Leaves and young stem are used in majority of the cases. Only 56% wild vegetables used in the study area are easily available, it means 44% wild vegetables are threatened to be lost if not conserved properly. The highly endangered wild vegetables in the study area are *Abrus precatorius*, *Centella asiatica* and *Solanum nigram*.

Key words: Wild vegetables, Rural communities, Ethnobotany, Theni District

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1. Intruduction

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 verity 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). 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). 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 (Binu, 2010; Bhogaonkar *et al*., 2010). The primitive men, through trial and error, have selected many wild edible plants and subsequently domesticated them (Kar, 2004). 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 (Nordeid *et al*., 1996; Orech *et al*., 2007). The wild vegetables are an important source for the supplementation of micronutrients in vegetarian diets (Agate *et al*., 2000; Odhav *et al*., 2007). Due to various natural and anthropogenic reasons natural resources of wild vegetables and habitats from where these resources are collected are depleting rapidly (Maikhuri *et al*., 2004; Bhogaonkar *et al*., 2010). Genetic resources of wild vegetables should be conserved for future use to overcome malnutrition in vegetarian diet, food security and for crop improvement of cultivated relatives of these wild vegetables (Kala, 2007). 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. Keeping above views in mind present study was proposed to highlight the wild vegetables used by the rural communities of Theni district, which needs to be documented for further studies leading to sustainable utilization of these resources to overcome malnutrition in vegetarian diet and to fight against hunger.

2. Materials and Methods

Theni district lies at the foot of Western Ghats and situated between 9^0 53' and 10^0 22' North latitude and 77^0 17'and 77^0 67' East longitude and bounded on north by Dindigul district, East by Madurai district, South by Virudhunagar district and West by Kerala State. The general geographical information of the district is diversified by several hill ranges and this is the main route for the tourist bound from Madurai to Kochi via Theni, Kumuli and Thekkadi wildlife Sanctuary. The rivers Suruli, Mullai Periyar, and Kotagudi flow through the district. There are 27 forest areas in Theni district constituting a total area of 795. 81 sq.km. The vegetation is classified as southern tropical forests in the plains and foot hills, dry deciduous forests, moist deciduous forests and evergreen forests in the high altitudes. In the present study, the survey was carried out in the several villages of Theni district.

2.1 Ethnobotanical surveys and collection of data

Survey of rural areas of Theni district was conducted during 2013-2014 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. The revised questionnaire was used for gathering data about nonconventional and underutilized wild vegetables of the study area. Field works were conducted in randomly selected villages. Total 50 informants having age of 30 to 65 years were interviewed during present study. Information's regarding the local names of plant species, part(s) used, availability in natural resources, method of processing and vegetable preparation, method of collection, storage and conservation needs were carefully recorded. Methods of Martin (1995) were followed during the present study. Voucher specimens were collected with the help of informants and reconfirmed by other informant's to ensure their local identity. Specimens were brought to the

laboratory and preserved in the form of herbarium at Department of Botany in Saraswathi Narayanan College, Madurai 625 022, TamilNadu, India.

3. Results and Discussion

During the study period, 19 wild plant species belonging to 18 genus and 15 families were found to be used as vegetables by the rural community of Theni district, Tamilnadu, India. Caesalpinaceae and Solanaceae are the highly represented families (Table -1). Various Parts of *Basella alba*, *Boerhaavia diffusa*, *Chenopodium album*, *Ficus hispida*, *Ipomoea aquatica* are reported as wild vegetable for the first time in India. *Chenopodium album* is the most common and popularly used wild vegetable followed by *Ipomoea aquatica* and *Coccinea grandis* in the study area. Leaves and young stem are used in majority of the cases followed by fruits, flowers and tubers . Only 56% wild vegetables used in the study area are easily available, whereas, 28% are available with difficulty and 16% are hardly available in natural resources, it means 44% wild vegetables are threatened to be lost if not conserved properly. The highly endangered wild vegetables in the study area are *Abrus precatorius*, *Centella asiatica*. Majority of the wild vegetables of study area are herb which may be domesticated and cultivated easily in comparison to other growth forms.

Table- 1: Underutilized indigenous wild vegetables of Theni district, Tamilnadu, India.

S.No.	Botanical name	Family	Vernacular name	Method of processing and vegetable preparation
1.	*Abrus precatorius* L.	Fabaceae	Kundumani	Young leaves are chopped into small pieces and fried in vegetable oil with potato. Salt and spices are added to taste.
2.	*Amaranthus spinosus* L.	Amaranthaceae	Mullukeerai	Young stem and leaves are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
3.	*Amaranthus viridis* L.	Amaranthaceae	Kuppaikeerai	Young stem and leaves are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
4.	*Basella alba* L.	Basellaceae	Kodipasalai	Young leaves are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
5.	*Bauhinia veriegata* L.	Caesalpinaceae	Mandarai	Flower buds are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
6.	*Boerhaavia diffusa* L.	Nyctaginaceae	Mukkarati keerai	Young leaves and stem are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
7.	*Cassia fistula* L.	Caesalpinaceae	Konrai	Young leaves are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
8.	*Centella asiatica* (L.)Urban	Apiaceae	Vallarai	Leaves and young stems are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
9.	*Chenopodium album* L.	Chenopodiaceae	Chakravarthi keerai	Young leaves are chopped into small pieces and boiled in water with pulses, also mixed in floor to make chapattis.
10.	*Coccinia grandis* (L.) Voigt.	Cucurbitaceae	Kovai	Unripe fruits are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
11.	*Commelina*	Commelinaceae	Thengai poo	Young leaves are chopped into small

	benghalensis L.			pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
12.	*Ficus hispida* L.	Moraceae	Peiathi	Unripe fruits are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste. Fruits are also used to make pickle.
13.	*Ipomoea aquatica* Forsk.	Convolvulaceae	Nail	Young leaves and stem are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
14.	*Leucas aspera* (wild) link	Lamiaceae	Thumbai	Young leaves are chopped into small pieces and fried in vegetable oil. Salt and spices is added to taste.
15.	*Momordica dioca* L.	Cucurbitaceae	Pazhupaagal	Unripe fruits are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
16.	*Moringa oleifera* Lam.	Moringaceae	Murungai	Young leaves and flowers are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
17.	*Oxalis corniculata* L.	Oxalidaceae	Pulichai kodi	Young leaves stem and are masticated with salt to prepare paste locally known as chutney.
18.	*Physalis minima* L.	Solanaceae	Toppikai	Young leaves are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
19.	*Solanum nigrum* L.	Solanaceae	Manathakali	Young leaves and stem are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.

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). 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.

The fact that sixty percent of the respondents were above fifty years old shows that the knowledge about wild vegetables is in danger of being lost and justify the need of documentation. 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. The 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. Simultaneously, an emphasis on the sustainable harvesting of wild edible plants will help enhance and maintain the region's biodiversity as well (Angami *et al*., 2006).

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