



*Research Paper*

**WILD EDIBLE FRUITS AND VEGETABLES OF YADAHALLI CHINKARA  
WILDLIFE SANCTUARY, BAGALKOT, KARNATAKA, INDIA**

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**Abstract**

Yadahalli Chinkara Wildlife Sanctuary (YCWS) is located in Bagalkot district of Karnataka. The versatile geographical features of the scrub forest area of the sanctuary instrument it to harbour great variety of flora and fauna. The present paper gives a list of wild edible fruits and vegetables of YCWS area on which people of the adjoining area are dependent since long. There were 30 species of 28 genera belonging to 23 families which contributed to the list of wild edible fruits. Among these plants two species were listed from the families Capparaceae, Cucurbitaceae, Fabaceae, Rhamnaceae, Rubiaceae, Rutaceae and Phyllanthaceae each. Remaining families had contributed with only one species each. There were 20 species of 19 genera belonging to 14 families that aid to the list of wild vegetables. Amaranthaceae was the dominate family with 6 species followed by Fabaceae with two species. Remaining families had contributed with single species each. Whereas species *Capparis zeylanica* L., *Coccinia grandis* (L.) Voigt, and *Tamarindus indica* L. were common in the list of both fruits and vegetable. The botanical name, family, habit, vernacular name, taste and mode of consumption (in case of fruits), part/s used and mode of preparation (in case of vegetables) and collector number of all the species are give in the table: 1 and 2.

Key words: Wild edible fruits, vegetables, wild edible plants, Yadahalli Chinkara Wildlife Sanctuary, Bagalkot.

**INTRODUCTION**

Early man used the wild plant products which were around him as a food or for food preparation before the practice of agriculture [5]. Wild Edible Plants (WEP) are those which are not cultivated by human but occur naturally and form a dietary food for

human [26]. Man is dependent on these WEP apart from those available from cultivated species to date. About 75,000 species of plants across the world are alleged to be edible from the review of about 100 published documents [17]. In the Indian epics, Rāmāyana and Mahābhārata, it is mentioned that the characters ate wild fruits and root/stem tubers to satiate their hunger during Vanavāsa (the banishment period lead in the forest). In 'Aranyakānda' of Maharshi Valmiki's Rāmāyana the great devotee, Shabari offers wild Jujube (*Ziziphus* sp.) fruits to Lord Rāma and Lakshmana is an example of wild edible fruits in India from prehistoric times [8,12].

The WEP extend a source of basic food and nutrition to the deprived populace of rural and tribal area [14]. Marketing of WEP supports the economic status of many families in India [32]. Taste of the food always makes the man to run behind it [21]. Likely the taste of products of WEP makes us to seek them. Also the WEP substitute the cultivated species of fruits and vegetables in the extreme conditions like draught [15]. However, changing lifestyle, now a day, has affected the food habit of the learned people [22] and the usage of WEP is decreasing. An extensive research and an *in-situ* conservation of WEP along with the possible cultivation of the same are needed for sustainable utilization and conservation in future [27]. This research paper focuses on the traditional knowledge of consuming wild fruits and vegetables and also serves in the conservation tasks of the biodiversity and the time-honoured culture of the indigenous people of YCWS area.

## MATERIALS AND METHOD

**Study Area:** YCWS is located in Bagalkot district of northern part of Karnataka. It is spread over the area between Bilagi and Mudhola Taluka between 16°18'00" - 16°23'47" N latitude and 75°24'00"-75°37'43"E longitude at the elevation of about 700m above mean sea level of Bagalkot Territorial Forest Division with 96.3691sq km of reserve forest area [24,35]. This sanctuary is with variable geographical features like grass lands, rocky slopes, ponds (water lodges) and minor falls. It foster the affluent scrub forest to shelter great faunal diversity. The temperature ranges between 14°C in December-January and 38°C in April-May and average annual rainfall is 580mm. There are numerous nalas (water channels) draining towards either Krishna or Ghataprabha rivers [23, 29].

**Data Collection:** An extensively floristic study was conducted in different seasons in the sanctuary. As there was no district flora available the collected specimens were identified using regional and state flora and other available flora [1, 3, 6, 4, 16]. Standard procedure was used for the preparation of herbarium specimens [2]. IPNI [33] and Plants of the world online databases were accessed for the nomenclatural updates of the plant species [34]. The list of species is arranged in alphabetical order of their botanical name family, habit, vernacular name, taste and mode of consumption (in case

of fruits), part used and mode of preparation (in case of vegetables) and collector number in the table: 1 and 2. Images of few species are given in figure:1.

## RESULTS

### 3.1 Number of edible species collected and their habit

There were 30 species of 28 genera belonging to 23 families which contributes to the list of wild edible fruits. Among these plants two species were listed from the families Capparaceae, Cucurbitaceae, Fabaceae, Rhamnaceae, Rubiaceae, Rutaceae and Phyllanthaceae. Remaining families had contributed with only one species each. There was only one herbaceous fruit-plant recorded, 2 were herbaceous climbers, 7 were shrubs, 1 was shrubby climber and 19 tree species were documented. In these plants fruits of four species were eaten in both unripe and ripen condition. Remaining were eaten only after ripening. There were 20 species of 19 genera belonging to 14 families that aid to the list of wild vegetables. Amaranthaceae had dominated with 6 species followed by Fabaceae with two species. Remaining families had contributed with single species. Among these wild vegetable plants 9 were herbs, 2 were herbaceous climbers, 2 were shrubs, 4 were shrubby climbers and 3 were tree species. However the species *Capparis zeylanica* L., *Coccinia grandis* (L.) Voigt, and *Tamarindus indica* L. are common in both the lists.

### 3.2 Overview of consumption trend

From the field interactions it was found that knowledge of many WEP was not known to many people. Only the families of shepherds and those who collect the firewood and medicinal plants from the sanctuary had a little knowledge of using WEP. It was said that the present generation doesn't prefer to collect and cook wild vegetables and hesitate to eat them when compared with the attractive cultivated vegetables that are easily available in the market.

### 3.2 Beliefs of the senior respondents

Senior respondents in their interaction expressed that one or the other part of the human body is hunger for every edible item. For that one must not reject any plant or plant product that is claimed to be edible. So they suggest eating the WEP at least once a year. The following beliefs were expressed by the senior respondents, further a systematic research and validation is needed in this regard.

- Consumption of flowers of *Cochlospermum religiosum* (L.) Alston increases facial beauty of the person.
- Consumption of kernel of *Strychnos potatorum* L.f. and fruit pulp of *Cordia sinensis* Lam. strengthen the waist of human (both in male or female).
- Consumption of fruits of *Tamarindus indica* L. increases the longevity of life.



**Fig. 1.** A. *Ximenia americana* L., B. *Cordia sinensis* Lam., C. *Opuntia elatior* Mill., D. *Rivea hypocrateriformis* (Desr.) Choisy, E. *Capparis zeylanica* L., F. *Premna serratifolia* L.

**Table.1 : Data showing the plant species used as wild fruits, their family, habit, vernacular name, mode of consumption, taste and collector number**

S. No	Botanical name	Family	Habit	Vernacular name	Mode of consumption	Taste	Collect or No.
1	<i>Aegle marmelos</i> (L.) Correa.	Rutaceae	Tree	Bilva patri	Pulp of ripen fruit is made into juice with jaggery and water	Sweet	MK-418
2	<i>Annona squamosa</i> L.	Annonaceae	Tree	Seeta fala	fleshy mesocarp around the seed in ripen fruit	Sweet	MK-7
3	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Tree	Bevu	Only pulp (Ripen)	Bitter-sweet	MK-247
4	<i>Canthium coromandelicum</i> (Burm.f.) Alston	Rubiaceae	Tree	Kaari	Whole fruit (Ripen) except seeds	Vagaru*	MK-108
5	<i>Capparis decidua</i> (Forssk.) Edgew.	Capparaceae	Tree	Nippaden kanti	Whole fruit (Ripen) except seeds	Sour-piquant	MK-51
6	<i>Capparis zeylanica</i> L.	Capparaceae	Shrub-climber	Tottalakaayi	Pulp is directly eaten, seed and rind discarded	Sweet-piquant	MK-469
7	<i>Carissa spinarum</i> L.	Apocynaceae	Shrub	Kavali	Whole fruit (Young) with salt, whole fruit except seeds (Ripen) with/without salt	Sour-sweet	MK-41
8	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Herb-climber	Tondikaayi	Whole fruit (Ripen)	Sour-sweet	MK-206
9	<i>Corallocarpus epigaeus</i> (Rottler) Hook.f.	Cucurbitaceae	Herb-climber	Haavina kodda	Whole fruit (Ripen)	Sour-sweet	MK-486
10	<i>Cordia sinensis</i> Lam.	Boraginaceae	Tree	Challa hannu	Whole fruit (Ripen) except seeds	Mild sweet	MK-275
11	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	Tree	Tumari	Whole fruit (Ripen) except seeds	Sweet	MK-67
12	<i>Ficus racemosa</i> L.	Moraceae	Tree	Atti	Whole fruit (Ripen)	Mild sweet	MK-66
13	<i>Flacourtia indica</i> (Burm.f.) Merr.	Flacourtiaceae	Tree		Whole fruit (Ripen) except seeds	Sweet	MK-267
14	<i>Flueggea leucopyrus</i> Willd.	Phyllanthaceae	Shrub	Bili hooli	Whole fruit (Ripen) except seeds	Mild sweet	MK68
15	<i>Gardenia latifolia</i> Soland	Rubiaceae	Tree	Bikki	Whole fruit (Ripen) except seeds	Sweet	MK-217
16	<i>Grewia villosa</i> Willd.	Malvaceae	Shrub	Jaani	Whole fruit (Ripen) except seeds	Sweet	MK-196
17	<i>Lantana camara</i> L.	Verbenaceae	Shrub	Chadarangi, Lantaana	Whole fruit (Ripen) except seeds	Sweet	MK-172
18	<i>Limonia acidissima</i> L.	Rutaceae	Tree	Balula kaayi	Hard rind is discarded, pulp along with seeds is mixed well with jaggery (Ripen)	Sour-sweet	MK-329
19	<i>Opuntia elatior</i> Mill.	Cactaceae	Shrub	Dabagalli	Rind is removed, seeds spitted out after eating whole pulp (Ripen)	Sweet	MK-39
20	<i>Phoenix sylvestris</i> (L.) Roxb.	Arecaceae	Tree	Eechala	Whole fruit except seeds (Ripen)	Sweet	MK-286
21	<i>Phyllanthus reticulatus</i> Poir	Phyllanthaceae	Shrub	Karihooli	Whole fruit except seeds (Ripen)	Vagaru	MK-276
22	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Fabaceae	Tree	Ilaachi kaayi	Rind and seeds are removed, pulp eaten (Ripen)	Vagaru	MK-283
23	<i>Santalum album</i> L.	Santalaceae	Tree	Shrigandha	Seed is cut open to eat the kernel (Ripen)	Vagaru	MK-193
24	<i>Solanum nigrum</i> L.	Solanaceae	Herb	Kaaki	Whole fruit (Ripen)	Sour-sweet	MK-227

25	<i>Strychnos potatorum</i> L.f.	Loganiaceae	Tree	Chilla gida	Dry seed is cut open to eat the kernel (Ripen) and it is used in <i>pān</i> * preparation	Vagaru	MK331
26	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Tree	Neerala	Fleshy rind (Ripen)	Sweet-Vagaru	MK-280
27	<i>Tamarindus indica</i> L.	Fabaceae	Tree	Hunase	Whole young fruit with salt and smooth pulp of ripen fruit is crushed with salt and cumin	Sour	MK-389
28	<i>Ximenia americana</i> L.	Olacaceae	Tree	Nakar hannu	Pulp and kernel (Ripen)	Bitter-sweet	MK-455
29	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Tree	Baari	Whole fruit except seed (Unripen/Ripen)	Sour-sweet	MK-201
30	<i>Ziziphus oenoplia</i> (L.) Mill.	Rhamnaceae Juss.	Shrub	Baari	Whole fruit except seed (Unripen/Ripen)	Sour-sweet	MK-468

**Note:** *Vagaru*\* is a typical term used in Kannada language for the taste that is neither sweet nor sour or tangy like raw fruits of guava, jamun, jujube, popmognate, etc

*Pān*\* is a preparation made with beetal leaf, generally eaten after meals in India which serves as a mouth freshner and helps for digestion.

**Table.2 : Data showing the plant species used as vegetable/s , their family, habit, vernacular name, part used as vegetable, mode of preparation and collector number**

S. No	Species name	Family	Habit	Vernacular name	Part used as vegetable	Mode of preparation	Collector No.
1	<i>Acyranthus aspera</i> L.	Amaranthaceae	Herb	Uttarani	Young leaves	Sauted in oil with mustard, cumin, crushed garlic and salt	MK-213
2	<i>Agave amaricana</i> L.	Asparagaceae	Shrub	Devvabaali	Flowers	Boiled in water for 5min, stock discarded, flowers sauted with mustard, cumin, garlic paste and salt	MK-266
3	<i>Allmania nodiflora</i> (L.) R.Br. ex Wt.var.aspera (Roth) Hook.f.	Amaranthaceae	Herb		Leaves	Sauted in oil with mustard, cumin, crushed garlic and salt	MK-186
4	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Amaranthaceae	Herb	Mullagasa	Young leaves	do	MK-183
5	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Herb	Adavi raajgiri	Young Leaves	do	MK-398
6	<i>Amaranthus viridis</i> L.	Amaranthaceae	Herb	Jutlapalle	Young Leaves	do	MK-397
7	<i>Basella alba</i> Linn.	Basellaceae	Shrub-climber	Basale	Leaves & stem	Small pieces used in the preparation regular curry	MK-451
8	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Herb	Punarnava	Leaves	Sauted in oil with mustard, cumin, crushed garlic and salt	MK-123
9	<i>Canavalia gladiata</i> (Jacq.) DC.	Fabaceae	Shrub-climber	Shembyavari	Young fruits	Chopped and made in to <i>palya</i> *	MK-414
10	<i>Capparis zeylanica</i> L.	Capparaceae	Shrub-climber	Tottalakaayi	Fruits	Whole fruit is boiled for 10min in water, stock discarded, seeds removed, chopped rind is made in to <i>palya</i> with split pigeon pea	MK-469
11	<i>Caralluma adscendens</i> (Roxb.) Haw. Var. fimbriata	Apocynaceae	Herb	Hulamajjigi / Basavanak	Shoot	Finally chopped and fried to brown with oil and made in to <i>palya</i>	MK-102

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12	<i>Celosia argentea</i> L.	Amaranthaceae	Herb	Honni/honnikukk	Young Leaves	Sauted in oil with mustard, cumin, crushed garlic and salt	MK-1
13	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Herb-climber	Tonde	Fruits(Unripened)	Finanally chopped and fried in oil to make <i>palya</i>	MK-206
14	<i>Cocculus hirsutus</i> (L.) Diels	Menispermaceae	Herb-climber	Daagadi balli	Leaves	Boiled in water for 5min, stock discarded, leaves sauted with mustard, cumin, garlic paste and salt	MK-204
15	<i>Cochlospermum religiosum</i> (L.) Alston	Bixaceae	Tree	Bettavari	Flowers	Petals sauted in oil with mustard, cumin, crushed garlic and salt	MK-395
16	<i>Euphorbia tirucalli</i> L.	Euphorbiaceae	Shrub	Kalli	Tender internodes	Boiled in water for about 5min, stock discarded, internodes sauted in oil with mustard, cumin, crushed garlic & salt	MK-63
17	<i>Glossocardia bosvallea</i> (L.f.) DC.	Asrereaceae	Herb	Kalla sabbasige	Whole Shoot	Sauted in oil with mustard, cumin, crushed garlic and salt	MK-33
18	<i>Premna serratifolia</i> L.	Lamiaceae	Tree	Narla	Fruits, Leaves	Fruits crushed to make <i>chutni</i> *, leaves boiled in water for 5min, stock discarded, leaves sauted in oil with mustard, cumin, crushed garlic and salt or prepared <i>palya</i> with split G4pigeon pea	MK-478
19	<i>Rivea hypocrateriformis</i> (Desr.) Choisy	Convolvulaceae	Shrub-climber	Mustiballi	Young leaves, tender shoots	Sauted in oil with mustard, cumin, crushed garlic and salt	MK-382
20	<i>Tamarindus indica</i> L.	Fabaceae	Tree	Hunase	Flowers, fruit, tender leaves	Flowers and leaves fried with pigeon pea to make <i>palya</i> , young fruits are made into <i>takka</i> *that can be preserved for 3-4 years	MK-389

**Note:**

***palya*\***: the main course item meant to eat with the Indian bread varieties or rice prepared by sauting an item in oil with onion/garlic, salt and other spices

***chutni*\***: a typical item prepared by crushing a particular flower/fruit/vegetable/pulse preferably with garlic, coriander, chilli powder, salt and jaggery

***takka*\***: a typical item prepared only with young fruits of *Tamarindus indica* L. by crushing with soaked fenugreek seeds, termaric powder, salt and jaggery

**DISCUSSION**

Knowledge of which wild fruit has to be eaten and how to eat it and the culinary skills and the recipe of cooking wild vegetables are dying after the death of the senior members in the community. The marketing of wild edible fruits especially of *Carissa*

*spinarum* L., *Ximenia americana* L., and *Ziziphus* sp. is significantly decreased in the surrounding area which were once extensively sold by 'yādi (meaning mother)'; the women of *Lambāni* community from the vicinity of the forest. However, *Annona squamosa* L., *Limonia acidissima* L., *Phoenix sylvestris* (L.) Roxb., *Pithecellobium dulce* (Roxb.) Benth., *Syzygium cumini* (L.) Skeels and *Tamarindus indica* L., have been cultivated for their ample commercial benefits. Focus on other neglected minor wild edible fruit species must also be given in terms of their conservation and also for commercial and nutritional benefits. *Agave americana* L., *Canavalia gladiata* (Jacq.) DC. *Cochlospermum religiosum* (L.) Alston, *Corallocarpus epigaeus* (Rottler) Hook.f., *Wrightia tinctoria* subsp. *rothii* (G.Don) Ngan are few such examples the dietary usage of which is becoming incredibly rare in the area. The exclusive usage, as food or as medicinal plants, of some species listed here are recorded from other adjoining districts of Bagalkot or from adjoining states but their usage was found to be diminishing in the adjoining area of the sanctuary [9,10,13,20,25,28,30,31]. Vegetables listed in the present paper are predominantly available in the wild. It is necessary to take steps for the cultivation of these species so that they can be conserved well and to promote them as staple food for the surrounding area.

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