

Exploration and Assessment of Wild Vegetables of Jalgaon Jamod, Dist. Buldhana (Maharashtra)

K.P. Raut¹, A. S. Deshpande¹, S. N. Malode*¹

¹Department of Botany, Government Vidarbha Institute of Science and Humanities, Amravati - 444604,
Maharashtra, India

ABSTRACT

Wild vegetables those occur naturally not only provide source of carbohydrates and proteins but also help to fill up deficiencies of many micronutrients, vitamins and minerals, which are not present in our regular vegetables. Present investigation concerns with exploration of such wild edibles from Jalgaon jamod region. About 40 different wild vegetables contributed to 29 families scored during the investigation. These annual or seasonal vegetables make part of regular diets of local inhabitants and tribal peoples. Maximum vegetables were belonged to amaranthaceae (10%) family followed by caesalpiniaceae (8%), euphorbiaceae (8%), portulacaceae (5%), malvaceae (5%), rutaceae (5%) and fabaceae (5%). While about 21 remaining families contribute only 3%. Present research will provide visibility to these wild nutritional crops and encourage their further evaluation for possible nutritional and pharmaceutical benefits.

Keywords: Wild vegetables, Jalgaon jamod, Annual, Seasonal, Tribal peoples, Amaranthaceae etc.

I. INTRODUCTION

Nature has been so kind to human since the inception of time, providing food, shelter and several other things necessary to make out living. There is so much to explore and utilize from nature and man's accomplishments are just a drop comparing to ocean. Several plants occur naturally and are unknown, have nutritional as well as nutraceutical values. Vegetables are the key source of carbohydrates, proteins, micronutrients, vitamins and fibers in human nutrition generally based chiefly on carbohydrates. Specifically seasonal vegetables can help to fill up deficiencies of many micronutrients, vitamins and minerals caused by redundancy of vegetables in daily diet. In recent years, these wild vegetables gained considerable importance in urban nutrition system as they serves as source of many rare nutrients, which are not present in our regular leafy, fruit and tuber vegetables. There beneficial effects on human health made them famous and increase their demand in local food market. Mostly tribal communities collect these wild edibles from their natural habitat. As these communities have undisturbed relationship with nature, they have knowledge about various preparations of these wild edibles and they are usually sold in tribal market (Jain and Sinha, 1988). Usually these wild vegetables provide additional source of food supplements and generates source of income to the tribal and local people. Many workers earlier evaluated nutritional superiority of these wild vegetables over cultivated field crops. These

vegetables also execute the food needs of the rural communities especially during the periods of food crises. These wild food resources include fruits, leaves, bulbs, roots, seeds, shoot stalk etc. which are usually made into delicious recipes and consumed. These wild plants have made important parts of human food system among indigenous cultures. Even though more than 7000 plant species are cultivated or harvested for food as well as pharmaceutical purpose from wild vegetation throughout the world, many among them or others are still neglected and underutilized due to negligence about their utility and necessity in human diet (Ghane et al., 2010; Price, 2003). It is estimated that about 60-70% of population that resides in agricultural and forest areas in developing countries relies on roots, leaves, fruits and nuts of forest species, which forms an integral part of their daily diets. They serve as an alternative to their daily staple food as well as a valuable food supplement during periods of food deficit to achieve nutritionally balanced diet (Aryal et al., 2009; Narzary et al., 2013). Nowadays documentation of such wild edibles is gaining importance to avail them as possible food resource. Present work is an attempt to document diversity of these wild vegetables from rural and forest area of taluka Jalgaon jamod, Dist Buldhana of Vidarbha region of Maharashtra. It will help to spread knowledge about these plants among the local peoples, which will help to increase their consumption thereby providing them market value.

II. MATERIALS AND METHODS

Present study conducted in Jalgaon jamod which is a small town in Buldhana district (Maharashtra) situated at elevation of about 291m. It is situated at the base of the Satpura range, about 10 km from Satpura. Its geographical location as represented by coordinates is 21.0486oN 76.5344oE. A survey conducted through different localities of the above said region. Personal interviews of local inhabitants and tribal peoples along with market surveys are the methods employed to gather information. Several Adivasi communities, local peoples were contacted and survey carried out. The naturalized population of these wild edibles was noted. Knowledge of their edible parts and edibility was noted from interview. Plants were identified using standard floras like Dhore (2002) and Naik (1998). Whole data was organized and tabulated. A comprehensive literature survey carried out to explore their medicinal properties. The vegetables that consume after roasting or boiling was categorized as cooked whereas those consumed directly (in salad, pickles) was designated as raw.

III. RESULTS AND DISCUSSIONS

The present study deals with the study of diversity and seasonal availability of wild edible vegetables. The vegetables that are found to be common in rural and forest areas of taluka Jalgaon jamod were recorded. In total 40 species belongs to 29 families were documented (Plate I). Details about botanical name, common name, family, habit, season, edibility and medicinal use of these plants are tabulated in Table 1. Medicinal uses of these wild edibles were reviewed from available literature including Kumar et al. (2012), Shivhare et al. (2012), Seth (2005), Baliga et al. (2011), Kshirsagar et al. (2012), Alegbejo (2013), Reyad-ul-Ferdous et al. (2015), Prabhu et al. (2021), Jana and Shekhawat (2010), Balekari and Veeresham (2015), Raza et al. (2013), Waako et al. (2005), Arif et al. (2016), Tamilselvan et al. (2011), Agyare et al. (2016), Orni et al. (2018), Jamkhande et al. (2013), Dutta (2015), Sailakshmi et al. (2018), Kumar et al. (2010), Mohamed et al. (2012), Parikh and Patel (2017), Lampariello et al. (2012), Mathew and Negi (2017), Patel et al. (2011), Kambhar (2014), Poovathur and Joseph (2016) and Gupta et al. (2015).

Among the wild edibles, maximum species are herbs (45%) followed by trees (25%), climbers (20%) and shrubs (10%). Maximum species were contributed by family Amaranthaceae (10%) followed by cucurbitaceae and caesalpiniaceae contributing 8%. Families like portulacaceae, malvaceae, rutaceae and fabaceae contributes 5%. All remaining families have only 1 species of wild edibles (Figure1). Several workers earlier documented diversity of wild edibles from various regions. Sanchez- Mata et al. (2011) documented 15 species (from 10 families) from Mediterranean area. Atram (2015) explore medicinal potential of wild leafy vegetables growing in rainy season from Maharashtra state. Chaithanya et al. (2015), Patil and Patil (2000), Ahmad et al. (2019), Dhole (2021) documented wild edibles from different regions including Nanda Devi Biosphere Reserve, Vazhachal forest (Kerala), Nasik (Maharashtra), Pakistan, Gaya (Bihar) etc.

Table 1: Details of Wild edibles documented from area of Jalgaon jamod, Buldhana district, Maharashtra.

Botanical Name	Local Name	Family	Habit	Season	Edibility	Medicinal uses
<i>Abelmoschus ficulneus</i> L.	Ran bhendi, Jungli bhindi	Malvaceae	Shrub	Winter	Leaves (cooked)	Used as a febrifuge, stomachic and antipyretic, also to treat diarrhea.
<i>Aegle marmelos</i> L.	Bel	Rutaceae	Tree	Summer	Fruits (raw or cooked)	Used for treatment of constipation, diarrhea, diabetes, respiratory affections, chronic diarrhea, dysentery and peptic ulcers; also possess cooling, laxative, astringent, digestive, stomachic, hypoglycemic and spasmogenic properties.
<i>Amaranthus cruentus</i> L.	Rajgura, Lal math	Amaranthaceae	Herb	Rainy/ Summer	Whole plant (cooked)	Boiled leaves and roots used as laxative, diuretic, anti-diabetic, antipyretic, anti-snake venom, antileprotic, anti-gonorrhoeal, expectorant, anti-inflammatory and has immunomodulatory activity, anti-androgenic activity and anthelmintic properties. Use to treat disturbed breathing in acute bronchitis, constipation, piles and anaemia.
<i>Amaranthus viridis</i> L.	Chopada math	Amaranthaceae	Herb	Rainy/ Summer	Whole plant (cooked)	Useful in diarrhea, inflammation, constipation, piles, anemia, jaundice, leucorrhoea and pain; has anti-inflammatory, antihepatotoxic, antiulcer anti-allergic, antiviral actions. Used to reduce labour pain and antipyretic.

<i>Anethum graveolens</i> L.	Shepu	Apiaceae	Herb	Rainy	Whole plant (cooked)	Effective on inflammation, flatulence, intestinal worms, ulcers and spermatorrhea; ingredient in gripe water, relieve colic pain in babies and flatulence in young children; also improves appetite, relieves gas, urinary complaints, piles, aids digestion cures, and mental disorders
<i>Bauhinia racemosa</i> Lam.	Aapta	Caesalpinaceae	Tree	Summer	Flowers or buds (cooked)	Used as laxative astringent to treat cough, dysentery, hemorrhage, piles, headache, fever, skin diseases, blood diseases and diarrhea.
<i>Capparis zeylanica</i> L.	Waghodi	Capparaceae	Climber	Rainy	Fruit (cooked)	Effective on snake bites; has anti-diabetic, insulin secretagogue activities
<i>Cardiospermum halicacabum</i> L.	Kapalfodi	Sapindaceae	Climber	Rainy	Leaves & shoots (cooked)	Has antimicrobial, antimalarial, antifungal, antiparasitic, antidiarrheal, anxiolytic, rubifacient, antipyretic properties; employed for management of painful, arthritic inflammatory conditions.
<i>Carissa carandas</i> auct. non L.	Karwand	Apocynaceae	Shrub	Rainy	Fruits (raw)	Useful in anorexia, sore throat, mouth ulcer and skin disorders; possess cardiotoxic activity, antihypertensive activity, cooling and acidic properties.
<i>Cassia tora</i> L.	Tarota	Caesalpinaceae	Herb	Rainy	Young leaves and Seeds (cooked)	Have laxative, antiperiodic, anthelmintic, germicide and antiseptic properties. Useful in helminthiasis, fever, constipation and cardiac disorders.
<i>Celosia argentea</i> L.	Kardu	Amaranthaceae	Herb	Rainy/Winter	Leaves (cooked)	Possess diuretic properties; beneficial as antidote, stomach disorder, calculi, diabetes and spermatorrhea.
<i>Coccinia grandis</i> L.	Tondali	Cucurbitaceae	Climber	Winter	Fruits (cooked)	Use for burning sensation, fever, agalactia, jaundice, stomach ache, skin disease, diabetes, wound healing, ulcers, asthma and cough.
<i>Colocasia esculenta</i> L.	Alu, Chamkur a	Araceae	Herb	All	Leaves (cooked)	Have antimicrobial and anti-inflammatory properties; Use to treat haemorrhage, otorrhea, adenitis,

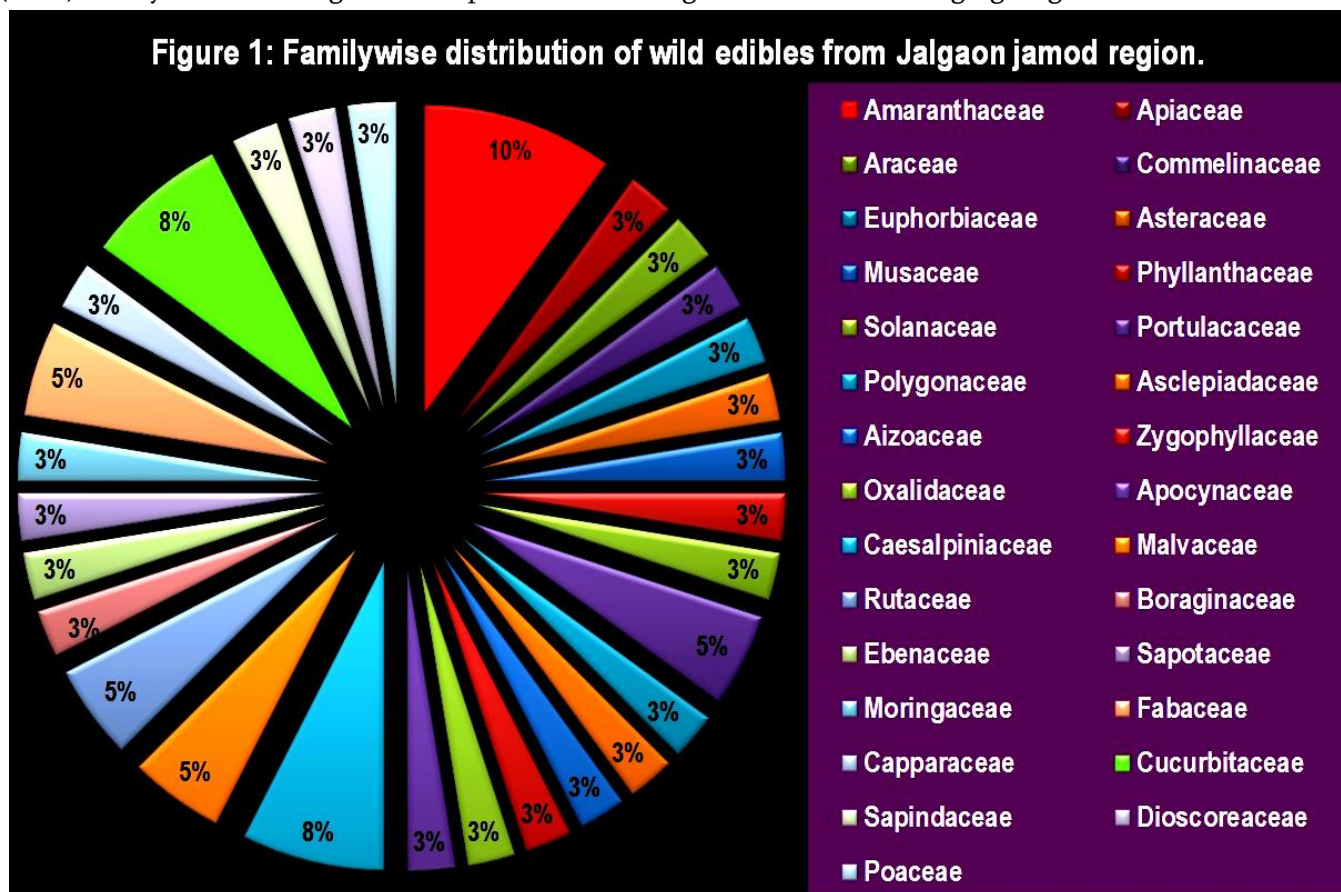
						alopecia, cough, anorexia.
<i>Commelina benghalensis</i> L.	Kena	Comme linaceae	Herb	Rainy	Leaves (cooked)	Use to treat burns, leprosy, piles, constipation, fever calculi, indigestion, sore throat, pain and inflammations; used as emollient, demulcent and laxative.
<i>Cordia dichotoma</i> G. Forst.	Bhokar	Boragin aceae	Tree	Winter	Fruits (raw or cooked)	Have several medicinal properties like sweet, cooling, antidiabetic, antiulcer, anti-inflammatory, laxative, anthelmintic, aphrodisiac, astringent, diuretic, emollient immune-modulator and analgesic.
<i>Dendrocalamus strictus</i> Roxb.	Bambu	Poaceae	Tree	Rainy/ Winter	Young shoots (cooked)	Beneficial in tuberculosis, cough; Usually used as a tonic and delicacy.
<i>Digera muricata</i> L.	Kunjar, Kundra, Latmahur ia	Amaran thaceae	Herb	Rainy	Leaves & young shoots (cooked)	Useful in diabetes, constipation, digestive system disorders, urinary disorders, boils and piles.
<i>Dioscorea alata</i> L.	Ratalu, Kand, Goradu	Dioscor eaceae	Climbe r	Winter	Stem tubers (cooked)	Useful in piles, gonorrhea, helminthiasis; tuber paste usually applied on cancerous wounds, leprosy, gonorrhoea, blood pressure and in skin diseases.
<i>Diospyros melanoxyton</i> Roxb.	Tembhur ni	Ebenace ae	Tree	Winter	Ripe Fruits (raw)	Have antioxidant, cooling and astringent effect.
<i>Euphorbia hirta</i> L.	Dudhi	Euphor biaceae	Herb	Rainy	Tender young leaves & shoots (cooked)	Beneficial in gastrointestinal disorders including diarrhea, dysentery, intestinal parasitosis, bronchial and respiratory diseases like asthma, bronchitis, hay fever and in conjunctivitis; also possess hypotensive and tonic properties.
<i>Hibiscus sabdariffa</i> L.	Ambadi, Roselle	Malvace ae	Shrub	Winter	Young leaves and tender stem (raw or cooked)	To treat hypertension, pyrexia and liver damage
<i>Hypochoeris</i>	Pathar	Asterac	Herb	All	Whole	For treatment of fever, headache,

<i>radicata</i> L.		eae			plant mostly roots and leaves (cooked)	colic
<i>Limonia acidissima</i> L.	Kaithbael, Kait, Kawath	Rutaceae	Tree	Winter	Ripe Fruits (raw)	Used as tonic, appetizing, astringent, stimulant, stomachic and digestive.
<i>Manilkara hexandra</i> Roxb.	Khirani	Sapotaceae	Tree	Winter to summer	Ripe Fruits (raw)	Have hypoglycemic, antioxidant, demulcent and emollient effects.
<i>Momordica dioica</i> Roxb.	Kartoli, Karusale	Cucurbitaceae	Climber	Rainy/ Winter	Fruits (cooked)	Beneficial in leprosy, fever, diabetes, hypertension, malignant ulcer, worms, jaundice; common stomachic and laxative.
<i>Moringa oleifera</i> Lam.	Shevga	Moringaceae	Tree	All	Leaves, pods & Flowers (cooked)	Useful in scurvy, inflammation, helminthiasis and rheumatism; Have diuretic, cholagogue, stimulant and aphrodisiac properties.
<i>Mucuna pruriens</i> Hook.	Kuyari	Fabaceae	Climber	Winter	Pods (cooked)	Use in management of male infertility, nervous disorders, as an antioxidant, aphrodisiac, anti-Parkinson's and neuroprotective effects,
<i>Musa acuminata</i> Colla.	Kacchikeli	Musaceae	Shrub	All	Unripe fruits (raw)	Have antioxidant, antidiabetic, immunomodulatory, hypolipidemic, anticancer, antimicrobial and especially anti-HIV activities; .employed for treatment of fever, cough, bronchitis, dysentery, allergic infections, sexually transmitted infections and non-communicable diseases.
<i>Oxalis corniculata</i> L.	Ambushi, Tinpatti	Oxalidaceae	Herb	Rainy	Leaves (cooked)	Useful in dyspepsia, dysentery, scurvy ulcer hemorrhoids, anemia, fever, diarrhea.
<i>Phyllanthus amarus</i> Schum. & Thonn.	Bhuiawala	Phyllanthaceae	Herb	Rainy	Fruits (raw)	Common astringent, stomachic, diuretic, febrifuge and antiseptic. The whole plant is beneficial in gastropathy, diarrhea, dysentery, intermittent fevers, ophthalmopathy,

						scabies, ulcers, gonorrhea, menorrhagia, wounds and other genital affections.
<i>Physalis minima</i> L.	Balloon plant	Solanaceae	Herb	Rainy	Fruits (raw)	Use to treat gastropathy, colic, ulcer, cough, bronchitis, anorexia, constipation, jaundice, scurvy.
<i>Portulaca oleracea</i> L.	Ghol bhaji	Portulacaceae	Herb	All	Whole plant (cooked)	Has diuretic, sedative, analgesic and cardiotoxic properties; use to treat rheumatism, gynaecological diseases, the urinary tract worm diseases, fever, dysentery; applied externally to ulcers, eczema and dermatitis; serves as a tonic and choleric.
<i>Portulaca quadrifida</i> L.	Ranghol, Chiu chi bhaji	Portulacaceae	Herb	All	Whole plant (cooked)	Similar medicinal properties as <i>Portulaca oleracea</i> .
<i>Rumex vesca</i> L.	Ambatchuka	Polygonaceae	Herb	Rainy	Whole plant (cooked)	Has antioxidant, antibacterial, stimulant properties; commonly employed as tonic and aphrodisiac agent.
<i>Sesbania grandiflora</i> L.	Heta, Hetga	Fabaceae	Tree	Winter	Flowers (cooked)	Useful in digestion, nasal catarrh, headache and weakness.
<i>Tamarindus indica</i> L.	Chinch	Caesalpinaceae	Tree	Winter	Whole plant, mostly fruits and flower (raw and cooked)	Useful in gastropathy, helminthiasis, ulcer, jaundice, anorexia, scurvy and impotency; Has anthelmintic, emetic, anodyne, antifungal, astringent, aperient and ophthalmic properties.
<i>Telosma pallida</i> Roxb.	Jhutel, jivati	Asclepiadaceae	climber	Rainy	Flowers (cooked)	Used to treat leukoderma; has antifungal, antitumor, anti-epilepsy, anti-asthmatics properties.
<i>Trianthema portulacastrum</i> L.	Lal vasul	Aizoaceae	Herb	Rainy	Leaves (cooked)	Have antioxidant, diuretic, analgesic, hepatoprotective and anticarcinogenic effects.
<i>Tribulus terrestris</i> L.	Gokharu	Zygophyllaceae	Herb	Summer	Leaves (cooked)	Medicinal properties include astringent, diuretic, aphrodisiac, depurative, anthelmintic, anti-inflammatory and tonic properties.
<i>Tricosanthes</i>	Sharanya,	Cucurbit	Climber	Winter	Fruits	Common tonic, febrifuge; beneficial

<i>dioica</i> Roxb.	Parwal	taceae	r	(cooked)	in edema, alopecia, alcoholism, jaundice and in subacute cases of enlargement of liver.
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Medakkar and Sharma (2016) conducted ethno-botanical exploration of exotic plants used for human consumption in Ahmednagar district. They have found about 52 species belongs to 32 families. They also observed that amaranthaceae family followed by caesalpinaceae, fabaceae and euphorbiaceae contributes maximum species. Sinha and Lakra (2005) investigated plant consumption patterns in three tribal dominated districts in Orissa including Kheonjhar, Mayurbhanj and Dhenkhal. They have collected data of about 46 fruit types, 50 leaves types, 11 flower types, 14 tuber types and 5 gum type wild edibles consumed by tribal population. Many workers like Misra et al. (2008), Dalzell and Gibson (1861) documented several indigenous plant species including naturalized and introduced. Upadhye et al. (1986) evaluated details of about 34 species of wild medicinal plants used by rural population of southwestern parts of Kolhapur district. Khan and Kakde (2014) surveyed Konkan region and reported 58 wild vegetables in total belonging 55 genera and 27 families.



IV. CONCLUSIONS

Present study aimed at exploring diversity of wild edibles from Jalgaon jamod region from district Buldhana. There were 40 species from 29 families were recorded. Among them most of the species are herbs followed by trees, climbers and shrubs. Familywise distribution of various wild edibles is represent in figure 1. Most of the species of wild edibles are found to be belongs to Amaranthaceae (4 species) while families like cucurbitaceae and caesalpinaceae occupies 2nd position (with 3 species each). These are followed by portulacaceae,

malvaceae, rutaceae and fabaceae (with 2 species each); while all the remaining families contribute only 1 species. Present work is helpful to assess diversity of wild vegetables and their indigenous knowledge in tribal areas. Research will serve as a base for further evaluation of these wild edibles for nutritional and pharmaceutical properties.

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