



## African Journal of Biological Sciences



### Wild Edible Fruits Of Eastern Ghats Of India: A Review

Kalpna Singhdeo<sup>1</sup>, Soumya Ranjan Dash<sup>2\*</sup>, Pratyush Kumar Karjee<sup>3</sup>, Rameswari Bal<sup>4</sup>, Manas Kumar Sarangi<sup>5</sup>, KP Saswati Swetalina<sup>6</sup>

<sup>1</sup>Assistant North Odisha University, Odisha, India, Email: kalpanasinghdeo20@gmail.com

<sup>2\*</sup>Assistant Professor, School of Biological Science, AIPH University, Bbsr Odisha, India, Email: sdash@aiph.ac.in

<sup>3</sup>Kabi Samrat Upendra Bhanja College, Bhanjagar, Odisha, India, Email: pratyushkarjee@gmail.com

<sup>4</sup>AIPH University, Bbsr Odisha, India, Email: rameswaribal123@gmail.com

<sup>5</sup>School of biological science AIPH University Bbsr, Odisha, India, Email: mns.srngi@gmail.com

<sup>6</sup>Assistant Professor in Botany, Model Degree College, Boudh Odisha, Email: saswatiswetalina@gmail.com

\*Corresponding authors: Soumya Ranjan Dash

\*Assistant Professor, School of Biological Science, AIPH University, Bbsr Odisha, India, Email: sdash@aiph.ac.in

#### Article History

Volume 6, Issue 5, 2024

Received: 15 May 2024 Accepted:

22 May 2024

doi: 10.33472/AFJBS.6.5.2024.6533-6558

#### INTRODUCTION

Fruit which is one of the immense gifts of mother nature to human being plays a supreme role in nourishment. It may be represented the mature ovary of a flower and found either fleshy or nut. These are commonly cultivated and also flourish in wild condition. Wild edible fruit plants flourish in their natural dwelling places which are directly consumed as food in contrast cultivated fruits varieties are planted for economical purpose (Sharma et al., 2017; Beluhan and Ranogajec, 2010). The different edible parts of fruits like pericarps, fleshy endocarp, placentas, arils, seeds, kernels and fleshy peduncle are consumed by various tribal people in remote areas.. The proper method to consume wild edible fruits is to eat unprocessed but some fruits are eaten in different forms such as dried, preparing as juice or sarbat,, candid or pickle or desserts etc. Some dry fruits are also utilized for making beverages.

Abundant Wild Edible fruit plants are detected in diversified habitat where there is less human interference due to tremendously tough environmental condition which is not appropriate for human surveillance (Bhatia et.al., 2018; Tiwari et.al., 2010). By increasing human population the forest synchronized its region as a result wild fruit plants lost their identity. since time immemorial humans may have consumed more than 7000 wild edible plants (Grivetti and Ogle, 2000). Many communities have adopted consuming wild edible fruits in their food habits and also practising this culture and implemented on their socio cultural activities, religious deeds and also retrieving health issues (Singh, 2006). Wild fruit acts an important role in the livelihood of tribal communities contributing their nutritional supplement. These are commonly consume as raw or cooked, which fulfill the bodybuilding. In taking of wild edible fruits filled the basic requirement of protein, carbohydrate, fats, different vitamins, minerals and dietary fibers. Their contribution as a group is estimated at 91% of vitamin C, 48% of vitamin A, 30% of folacin, 27% of vitamin B6, 17% of thiamine and 15% of niacin in the diet (Craig and Beck, 1999; Quebedeaux and Bliss, 1988; Quebedeaux and Eisa, 1990; Wargovich, 2000). Its antioxidant properties provide essential dietary supplements and remedial usage. Rural populace mainly rely on wild edible plant for various purposes such as nutritional supplement, medicine, food, fodder including fuel requirement.(Gangwar et al., 2010). Wild edible plants were always been used as the earliest food sources that provided required energy for their growth, development and multiplication to the human population (Rai et.al., 2012). (Rasingam, 2012) stated that the assistance of forest foods that gives food security can be categorized into three types . Providing supplementary food, seasonal foods and an

emergency food when others foods are unavailable. From nutritional analysis of some wild edible plants, the existence of nutrient is found superior than domesticated varieties (Orech et.al., 2007; Kabuye, 1997). The Food and Agricultural Organization estimates around one billion people use wild foods in their diet (FAO, 1999).

The ripe fruits of *Mangifera indica*, *Aegle marmelos*, *Artocarpus heterophyllus*, *Annona* spp.,

*Flacourtia indica*, *Diospyros melanoxylon*, *Psidium guajava*, *Phoenix acaulis*, are sweet in taste and consumed directly. Some fruits which are acidic in taste such as *Ziziphus mauritiana*, *Averrhoa carambola*, *Artocarpus lacucha*, *Antidesma* spp., *Phyllanthus emblica* etc. are consumed by many people. Insipid fruits of several species of *Ficus* are eaten in times of food scarcity. Some people like to eat fruits of *Toddalia asiatica* and *Zanthoxylum rhetsa* even they cause a burning sensation in the tongue. Ripe fruits of certain species like *Oxalis psittacorum*, *Lepisanthes tetraphylla* and *Passiflora foetida* emit unpleasant smell (Mohapatra and panda, 2009).

Chutney which is a type of spicy appetizer served in a meal or bread which contains different spices, fruit and vegetable mix. It may be sweet or spicy and hot differing in flavour depending on fruits and spices used.

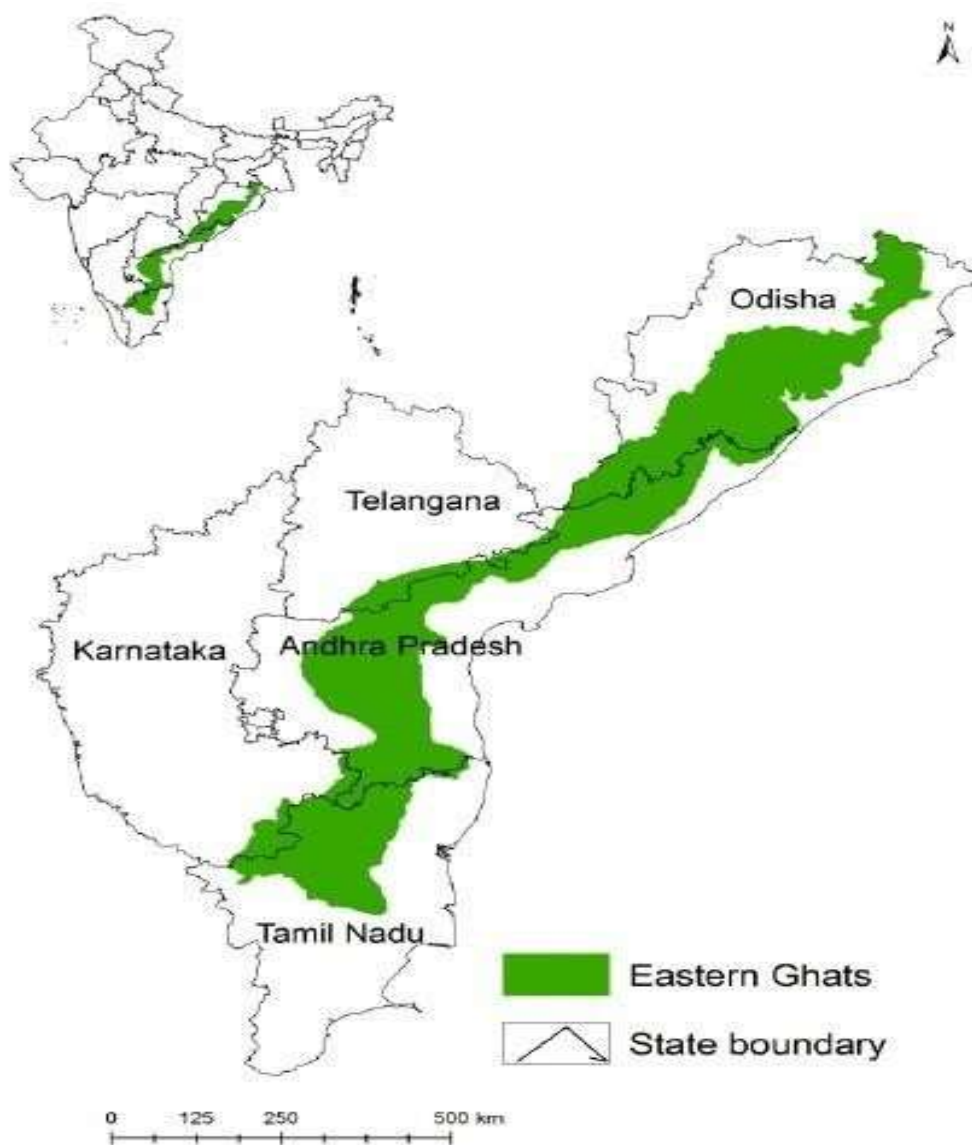
Wild mango (*Mangifera indica*), Tamarind (*Tamarindus indica*) and wood apple (*Limonia acidissima*) are the common fruits used in preparation of chutneys. Wild mango, *Citrus*, *Phyllanthus emblica*, *Dillenia pentagyna*, *Spondias pinnata*, *Tamarindus indica*, *Xeromphis spinosa*, *Ziziphus mauritiana*, *Averrhoa carambola*, *Spondias mangifera* are eaten as pickles (Mohapatra and panda, 2009).

Some indigenous communities use over 200 species of fruits (Kuhnlein, 2009). In India 600 plant species are known to have value as food (Rathore, 2009). Malnutrition which is a major health burden in developing countries, and the recognition that nutritional security and biodiversity are linked is fundamental for enlisting policy support to secure wild food use and preserve habitats for wild edible species (Ajesh et.al., 2012).

It plays an imperative role in treating several diseases mainly which are caused by nutrient deficiency. Uses of noncultivated foods of which wild fruits form a part as a diet supplement or as a coping mechanism in times of food shortage, provides an important safety net in the livelihood of rural communities (Mc Sweeny, 2004; Takasaki et al., 2004) especially in Africa (Mojeremane and Tshwenyane, 2004; Getachew et.al., 2005; Redzic, 2007).

The Eastern Ghats or Purba Ghat of India is a scattered range of tors along India's eastern coast. The Eastern Ghats transverse through the states of Odisha, Andhra Pradesh, Tamilnadu and a few parts of Karnataka and ultimately merge with Western Ghats at moyar valley. The eastern Ghats covers an area of about 75,000km<sup>2</sup> with an average width of about 200km in the north and about 100 km in the south. The major portion of about 48% Eastern Ghats comes under undivided Andhra Pradesh while 25 % each comes in Odisha and Tamilnadu remaining 2% included in Karnataka. The continuous range of Eastern Ghats is deteriorate and fragmented by four crucial rivers of India Godavari, Mahanadi, Krishna and Kaveri. These rivers are commenced from Western Ghats and passes through Eastern Ghats. It is a chain of lofty ruptured disconnected hills commenced from the Mahanadi in Odisha to the Vagai in Tamilnadu. They almost vanish between the Godavari and the Krishna. The verdant valley of Eastern Ghats are rich in flora and fauna. There are about 158 massif in Eastern Ghats.

Studies are easily accessible on wild edible fruits of Eastern Ghats and Western Ghats of India (Mahapatra and Panda 2012; Sahoo et.al 2016; Dhole et.al 2017; Khadar and Basha et.al 2009; Rekka and Senthil 2014 in Eastern Ghats and Arinathan et.al. 2020; Anuradha et.al. 2010; Bhogaonkar et.al. 2010 in Western Ghats). A comprehensive review on wild edible fruits of Western Ghats of India is available. However, there is a dearth of review paper on wild edible fruits of Eastern Ghats of India. The aim of this review is to enumerate the ethno botanical utilization of wild edible fruits of Eastern Ghats which are lesser known to urban population but are significantly used by rural populace for their food requirements. These fruits are having high nutritional value in compared to cultivated or domesticated fruit varieties. Therefore, further research is needed to explore the possibilities of wild edible fruits to provide food security for the growing population and to explore the wild edible fruit of unexplored areas.



**Figure 1: Map of Eastern Ghats of India**

### Methodology

Most of the research paper providing information regarding wild edible fruits used by tribal or rural populace of Eastern Ghats of India were documented and compiled. The nomenclatures of the plants were updated from the website <https://www.theplantlist.org/>. The vernacular names were listed using regional and national floras. The Botany of Bihar and Orissa and The Flora of Orissa (Haines, 1925; Saxena & Brahmam, 1996) were consulted for botanical identification. Plants were arranged in alphabetical order along with their family, habit, locality, edible parts used and life forms. The accepted name of the plants are consider to enlisted.

### Results and discussion

There are beaucoup literature accessible on Wild Edible Fruits of various region of India (Bhatia et.al 2018; Bhujel et.al 2018; Yallesh et.al 2018; Chandi Prasad and Sharma 2018; Venkatachalapathi and Paulsamy 2017 ; Sharma et.al 2017; Sahoo et.al 2016 ; Sathyavati and Janardhanan 2014; Nayak and Basak 2015; Mahapatra and Panda 2012; Ajesh et.al 2012; Basha et.al 2009; Taketemjen et.al 2009). Wild Edible Fruits are the major source of food to cope of increasing demand of food. Arora and Pandey (1996) documented the availability of 647 species of wild edible fruit which belongs to 112 families found in India. A lavishing quantity of literature obtainable and documented by various authors from several parts of Eastern Ghats. Arora (1991) discovered 45,000 wild plant species among them 647 species are consumed as fruit by tribal communities. There are several author who studied about Wild edible plants utilized for various purposes in Eastern Ghats (Girach et.al 1992; Girach and Aminuddin 1992; Girach et.al 1997; Uma and singh 1987; Goud and Pullaiah

1996;Ansari et.al 1993;Alagesaboopathi et.al1996;Murthy et.al 2003;Hebbar et.al 2003;Rajasab and Isaq;Sinha and Lakra 2005;Reddy et.al 2007;Mukesh et.al 2013;Panda 2014;Mahapatra and Panda 2016; Sahoo et. al 2016; Rekka and Senthil 2014;Khadar Basha et.al 2009; Noor and Satapathy 2020). From this literature review we scrutinize and annalize that Eastern Ghats which is enrich in wild edible fruit plants which is a bliss to tribal and rural communities. From the consequence of this review we detect subtotal of 209 plant species belonging to 65 Family enlisted from different states of Eastern Ghats. Diversity in the habit was enlisted as 120 tree species, 56 shrubs, 7 herbs, and 25 climbers ,2 hydrophytes and 1 epiphyte. Among these Rutaceae is the specious family having 13 species of Wild edible fruits are found .Followed by Moraceae having 12 species and Tiliaceae which have 11 species .From Euphorbiaceae and Rubiaceae family 10 species each were found . Annonaceae,Arecaceae,Solanaceae and Rhamnaceae 7 species and the rest family having minor figure of species.There are many wild edible fruits which have high nutritious values used by tribals but are not used by urban populace so that its significance decreases day by day.

**Table 1: List of Wild edible fruits found in Eastern Ghats of India**

SI no	Botanical Name	Vernacular name	Family	Life form	Edible part used	Locality	Reference
1	<i>Aegle marmelos</i> (L.) <i>Correa</i>	Bael (O)	Rutaceae	Tree	Fruit pulp	O, AP	Mahapatra and Panda 2012; Sahoo et .al 2016;Noor and Satapathy 2020;Mallik et.al 2020 Khadar et.al., 2009
2	<i>Aglaiia elaeagnoides</i> (A. Juss.) Benth.	Yerra aduga (Tel)	Meliaceae	Tree	Fruit	OD	Mahapatra and Panda 2012
3	<i>Alangium sa.</i> (L.f.)Wanger	Ankula(O) Alangal(TE)	Alangiaceae	Tree	Ripefruit pulp	TN,OD, AP	Rekka and Senthil 2014; Mahapatra and Panda 2012; Noor and Satapathy 2020;Mallik et.al 2020; Khadar et.al 2009
4	<i>Allophylus serratus</i> (Hiern) Kurz	Khandakoli (O)	Sapindaceae	Shrub	Ripe fruit	OD	Mahapatra and Panda 2012 ;Noor and Satapathy 2020
5	<i>Alphonsea lutea</i> (Roxb.)Hook.f.Thomas	Chauri muthi(O)	Annonaceae	Tree	Ripe fruit	OD	Sahoo et. al 2016
6	<i>Alphonsea ventricosa</i>	Nuha jhadi	Annonaceae	Tree	Ripe fruit	OD	Sahoo et. al 2016

7	<i>Ampelocissus latifolia</i> (Roxb.)planch	Kanjia lata	Vitaceae	Climber	Ripe fruit	OD	Mahapatra and Panda 2012; Sahoo et .al 2016 Dhole et. al 2017;
							Noor and Satapathy 2020
8	<i>Anacardium occidentale</i>	Mundhiri (TA)	Anacardiaceae	Tree	Ripe fruit	TN	Rekka and Senthil 2014
9	<i>Ananus comosus</i> , L.	Anasipalam (TA)	Bromeliaceae	Herb	Ripe fruit	TN	Rekka and Senthil 2014
10	<i>Annona reticulate</i> L.	Ata, Ramap (O),	Annonaceae	Tree	White colour pulp is consumed	OD	Mahapatra and Panda 2012; Noor and Satapathy 2020; Mallick et.al 2020;
11	<i>Annona squamosa</i> L.	Seetapandu (TE), Neua(o)	Annonaceae	Tree	Fruit pulp	AP,OD	Khadar and Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020;
12	<i>Anthocephalus cadamba</i> , (Roxb.) Miq	Kadamba(o)	Rubiaceae	Tree	Ripe fruit	OD	Mallick et.al 2020
13	<i>Antidesma acidium</i> Retz.	Luniari(O)	Euphorbiaceae	Tree	Ripe fruits	AP,OD	Khadar Basha et.al 2009 Mahapatra and Panda 2012; Noor and Satapathy 2020 Dhole et.al 2017; Sahoo et .al 2016
14	<i>Antidesma bunius</i> Spreng.	Apenu(o)	Euphorbiaceae	Tree	Ripe fruits are eaten	OD	Mahapatra and Panda 2012; Noor and Satapathy 2020;Malli ck et.al 2020

15	<i>Antidesma ghaesembillia</i> Gaertn.	Kath Marmuri (O)	Euphorbiaceae	Shrub or small tree;	Raw fruits are eaten	OD	Mahapatra and Panda 2012; Dhole et.al 201; Sahoo et .al 2016; Mallick et.al 2020
16	<i>Aporusa octandra</i> (Buch.- Ham. ex D.Don) Vickery	Tabu (O),	Euphorbiaceae	Tree	Ripe fruits are consumed	OD	Mahapatra and Panda 2012

17	<i>Ardisia solanacea</i> Roxb.	Hadakankali (O),	Myrsinaceae	large shrub.	Juice of ripe fruit	OD	Mahapatra and Panda 2012;Sahoo et.al 2016
18	<i>Artocarpus heterophyllus</i> ,Lam	Palla(TA) Panasa (O)	Moraceae	Tree	Ripe fruits	TN,OD	Rekka and Senthil 2014; Mahapatra and Panda 2012; Noor and Satapathy 2020
19	<i>Artocarpus hirsutus</i> Lam	Kattupala (TA)	Moraceae	Tree	Raw fruits cooked and eaten	TN	Rekka and Senthil 2014
20	<i>Artocarpus lacucha</i> Roxb.	Jeuta (O), Dhau,	Moraceae	Tree	Ripe fruits are made to chutneys	OD	Mahapatra and Panda 2012;Sahoo et.al 2016; Noor and Satapathy 2020; Mallick et.al 2020
21	<i>Atalantia monophylla</i> (L.)Correa	Thurethekai (TA) Katha Naranga (O),	Rutaceae	Shrub	Green fruits used to make pickle	TN,AP, OD	Rekka and Senthil 2014 Basha et.al 2009; Sahoo et .al 2016
22	<i>Atylosia scarabaeoides</i> (L.) Benth.	Fabaceae	Buru kolthi	Climber	Ripe fruit	OD	Sahoo et .al 2016
23	<i>Averrhoa carambola</i> Linn.	Karamanga (O),	Averrhoaceae	Trees	Ripened sweet fruits are eaten	OD	Mahapatra and Panda 2012 ;Noor and Satapathy 2020; Mallick et.al 2020
24	<i>Azadirachta indica</i> A.Juss	Neem(TE)	Meliaceae	Tree	Ripe fruit	AP	Basha et.al 2009

25	<i>Azima tetraantha</i> Lam.	Odibhanga (O)	Salvadoraceae	Shrub	Ripe berries	OD	Mahapatra and Panda 2012
26	<i>Baccaurea ramiflora</i> Lour.	Rajkoli(O)	Euphorbaceae	Tree	Ripe fruit	OD	Mahapatra and Panda 2012; Sahoo et al 2016; Noor and Satapathy 2020
27	<i>Bauhinia vahlii</i>	Siali(O)	Caesalpiniaceae	Climber	Roasted seeds taken raw or after boiling	OD	Mahapatra and Panda 2012; Dhole et.al 2017; Sahoo et al 2016

28	<i>Borassus flabellifer</i> L.	Thegalu(TE)	Arecaceae	Tree	The mesocarp of the ripe fruits	AP,OD	Basha et.al 2009; Noor and Satapathy 2020; Noor and Satapathy 2020; Mallick et.al 2020
29	<i>Bridelia retusa</i> (Linn.) Spreng.	Kasi(O)	Euphorbaceae	Tree	Ripe fruits	OD	Mahapatra and Panda 2012; Dhole et.al 2017; Sahoo et al 2016; Noor and Satapathy 2020
30	<i>Buchanania axillaris</i> (Desr.) <i>Ramamurthy</i>	Seeramaram (TA) Pedda sara (Tel.)	Anacardiaceae	Tree	seed kernels are eaten	AP	Basha et.al 2009
31	<i>Buchanania lanza</i> Sprengel	Char koli(O)	Anacardiaceae	Tree	Ripe fruits	OD, AP	Mahapatra and Panda 2012; Sahoo et al 2016; Basha et.al 2009; Dhole et.al 2017; Noor and Satapathy 2020; Mallick et.al 2020
32	<i>Butea superba</i> (Roxb.)	Marda	Fabaceae	Tree	Ripe fruit	OD	Sahoo et al 2016



33	<i>Caesalpinia bonduchia</i> (L.)Roxb.	Gila	Caesalpiniaceae	Tree	Seeds are eaten	OD	Mallick et.al 2020
34	<i>Calamus guruba</i> Buch.-Ham.	Kanta beta(O)	Areaceae	Climber	Fruit pulp	OD	Mahapatra and Panda 2012
35	<i>Calamus latifolius</i> Roxb.	Gouri beta(O)	Areaceae	Shrub	Sweet pulp	OD	Mahapatra and Panda 2012
36	<i>Calocarpum sapota</i> (Jacq.)Merr.	Muttaipazhalam (TA)	Sapotaceae	Tree	Ripe fruits	TN	Rekka and Senthil 2014
37	<i>Capparis sepiaria</i>	Kantikapali (O)	Capparaceae	Shrub	Ripe fruits	OD	Mahapatra and Panda 2012
38	<i>Capparis zeylanica</i>	Asadhua(O)	Capparaceae	Climber	Ripe and unripe fruits	OD	Mahapatra and Panda 2012; Dhole et.al 2017; Mallick et.al 2020
39	<i>Canavalia ensiformis</i>	Kattuavari (TA)	Fabaceae	Climber	Green fruits used in curries	TN	Rekka and Senthil 2014

40	<i>Cansjera rheedii</i> Gmel.	Jhatika (O)	Opiliaceae	Shrub	Raw fruit eaten	OD	Mahapatra and Panda 2012
41	<i>Canthium dicoccum</i> (Gaertn.) Teijsm. & Binnend	Karuna (O)	Rubiaceae	Tree	Both ripe and raw fruits are eaten	OD	Mahapatra and Panda 2012; Sahoo et .al 2016
42	<i>Canthium parviflorum</i> Lam.	Balusu(TE), Tuthudi(o)	Rubiaceae	Shrub	Used in curries	AP,OD	Basha et.al 2009; Noor and Satapathy 2020
43	<i>Capparis brevispina</i> DC.	Nepheda (O),	Capparaceae	Shrub	The ripe fruits are eaten	OD	Mahapatra and Panda 2012; Sahoo et.al 2016; Noor and Satapathy 2020
44	<i>Capparis sepiaria</i> Linn.	Kantikapali, Hudipi (O),	Capparaceae	Shrubs	The ripe fleshy fruits are edible.	OD	Mahapatra and Panda 2012; Noor and Satapathy 2020; Noor and Satapathy 2020



45	<i>Capparis zeylanica</i> Linn.	Asadhua (O),	Capparaceae	Shrub	Fruit is used as a vegetable or made into pickles.	OD	Mahapatra and Panda 2012; Sahoo et al 2016; Noor and Satapathy 2020; Mallik et al 2020
46	<i>Careya arborea</i> Roxb.	Araya(TE) Kumbhi (O),	Lecythidaceae	Tree	Ripe fruits are aromatic and edible,	AP,OD	Basha et.al 2009;Sahoo et al 2016
47	<i>Carissa carandus</i> L.	Peddakalavi (TE) Anku koli (O)	Apocynaceae	Shrub	Unripe fruits are used in pickle and ripe fruits are used in jellies	AP	Basha et.al 2009; Mahapatra and Panda 2012; Noor and Satapathy 2020
48	<i>Carissa spinarum</i> L. Mant.	Dudhakoli (O)	Apocynaceae	Shrub	Ripe fruits	OD	Mahapatra and Panda 2012; Dhole et.al 2017;Basha et al 2009; Noor and Satapathy 2020;Mallik et al 2020
49	<i>Cassia fistula</i>	Sunari	Caesalpiniaceae	Tree	Mature seed	OD	Sahoo et al 2016

50	<i>Carmona retusa</i> (Vahl) Masam	Panamari (O),	Ehretiaceae	Shrub	Ripe fleshy fruits are eaten.	OD	Mahapatra and Panda 2012
51	<i>Catunaregam spinosa</i> (Thunb.) Tirveng.	Salara koli, Mahana (O),	Rubiaceae	Small tree or large shrub,	The ripe fruits are edible.	OD	Mahapatra and Panda 2012; Sahoo et al 2016
52	<i>Cissus latifolia</i> Lam.	Totamamal	Vitaceae	Shrub	Fruits are edible	OD	Dhole et.al 2017
53	<i>Cissus vitiginea</i> Linn.	Jangli Angur	Vitaceae	Climber	Fruits are eaten	OD	Mahapatra and Panda 2012

54	<i>Citrus maxima</i> (Burn) Merrill.	Pampuilmaspalam (TA)	Rutaceae	Tree	Ripe fruits	TN	Rekka and Senthil 2014; Noor and Satapathy 2020
55	<i>Citrus medica</i> L.	Jambira(O)	Rutaceae	Tree	Ripe and unripe fruits	OD	Mahapatra and Panda 2012;Sahoo et.al 2016; Noor and Satapathy 2020
56	<i>Citrus sinensis</i>	Naranga(O)	Rutaceae	Tree	Ripe and unripe fruits	OD	Mahapatra and Panda 2012
57	<i>Clausena dentate</i>	Annaikattipalam(TA)	Rutaceae	Shrub	Ripe fruits	TN	Rekka and Senthil 2014
58	<i>Clausena excavate</i> Burm.F.	Agnijhad	Rutaceae	Shrub	Ripe fruit	OD	Sahoo et.al 2016
59	<i>Coccinia grandis</i> (Linn.) Voigt	Kainchikakudi(O)	Cucurbitaceae	Climber	Ripe and unripe fruits	OD	Mahapatra and Panda 2012; Noor and Satapathy 2020
60	<i>Cordia dichotoma</i> Forst.f.	Gual koli(O)	Cordiaceae	Tree	Ripe fruits	AP,OD	Basha et.al 2009; Dhole et.al 2017; Noor and Satapathy 2020;Mallik et.al 2020
61	<i>Cordia domestica</i> Roth.	Bankanakkera (TE)	Cordiaceae	Tree	-	AP	Basha et.al 2009
62	<i>Cordia evulor</i> (C.B. Clarke) Gamble	Urunakkera (TE)	Cordiaceae	Tree	-	AP	Basha et.al 2009
63	<i>Cordia gharaf</i> (Forsskal)Ehrenb.	Sirunaruvuli(TE)	Cordiaceae	Tree	-	AP	Basha et.al 2009
64	<i>Cordia macleodii</i> Hook.f.&Thoms.	Botukle(TE)	Cordiaceae	Tree	-	AP	Basha et.al 2009
65	<i>Cyphomandra betaceae</i>	Marathakkali(TA)	Solanaceae	Shrub	Ripe fruits eaten	TN	Rekka and Senthil 2014
66	<i>Cycas circinalis</i>	Biru	Cycadaceae	Tree	Ripe fruit cooked	OD	Sahoo et .al 2016
67	<i>Dendobium moschatum</i>	Daru janapa	Orchidaceae	Shrub	Unripe fruit cooked	OD	Sahoo et .al 2016
68	<i>Dendobium formosum</i>	Daru janapa	Orchidaceae	Epiphyte	Unripe fruit cooked	OD	Sahoo et .al 2016

69	<i>Dillenia aurea</i> Sm.	Rai, Karmata (O)	Dilleniaceae	Tree	Ripe fruits are consumed	OD	Mahapatra and Panda 2012; Sahoo et al 2016; Noor and Satapathy 2020; Mallick et.al 2020
70	<i>Dillenia indica</i> Linn.	Oau (O)	Dilleniaceae	Tree	Fleshy sepals are cooked and eaten	OD	Mahapatra and Panda 2012; Dhole et.al 2017; Sahoo et al 2016; Noor and Satapathy 2020
71	<i>Dillenia pentagyna</i> Roxb.	Rai(O)	Dilleniaceae	Tree	Ripe and unripe fruit	OD	Mahapatra and Panda 2012; Dhole et.al 2017; Sahoo et al 2016
72	<i>Diospyros chloroxylon</i> Roxb.	Gour Kasa, Kasai (O),	Ebenaceae	Shrub or small tree,	Ripe fruits are eaten	OD	Mahapatra and Panda 2012
73	<i>Diospyros embryopteris</i>	Mankad kendu(O)	Ebenaceae	Tree	Ripe fruit	OD	Mahapatra and Panda 2012; Sahoo et al 2016
74	<i>Diospyros ferrea</i> (Willd.) Bakh.	Guakoli (O),	Ebenaceae	Shrub	Ripe fruits are eaten	OD	Mahapatra and Panda 2012
75	<i>Diospyros malabarica</i> (Desr.) Kostel	Mankada kendu(O)	Ebenaceae	Tree	Ripe fruits	OD	Mahapatra and Panda 2012; Dhole et.al 2017; Noor and Satapathy 2020; Mallick et.al 2020
76	<i>Diospyros melanoxylon</i> Roxb.	Kendu(O)	Ebenaceae	Tree	Ripe fruits	OD,AP	Mahapatra and Panda 2012; Basha et.al 2009; Dhole et.al 2017; Sahoo et al 2016;

							Noor and Satapathy 2020; Mallick et.al 2020
77	<i>Diospyros sylvatica</i> Roxb.	Madhur Kalicha (O)	Ebenaceae	Tree	The ripe fruits are edible.	OD	Mahapatra and Panda 2012; Dhole et.al 2017
78	<i>Ehretia laevis</i> Roxb.	Masania (O),	Ehretiaceae	Tree	Ripe fruits are eaten	OD	Mahapatra and Panda 2012
79	<i>Elaeagnus kologa</i> Schlecht.	Dibaguda (O),	Elaeagnaceae	climbing shrub	Fruit is edible when ripe,	OD	Mahapatra and Panda 2012
80	<i>Erycibe paniculata</i> Roxb.	Durkoli(O)	Convolvulaceae	Climber	Ripe fruits	OD	Mahapatra and Panda 2012; Sahoo et.al 2016
81	<i>Erythroxylum monogynum</i> Roxb.	Gatiri(TE)	Erythroxylaceae	Shrub		AP,OD	Basha et.al 2009; Mallick et.al 2020
82	<i>Eugenia rothii</i> Panigrahi	Sagadabatua(O)	Myrtaceae	Srub	Ripe fruits	OD	Mahapatra and Panda 2012
83	<i>Ficus auriculata</i> Lour.	Raja Dimiri (O),	Moraceae	Tree	Ripe figs are eaten raw	OD	Mahapatra and Panda 2012;Sahoo et.al 2016; Noor and Satapathy 2020
84	<i>Ficus benghalensis</i> L.	Bara(O)	Moraceae	Tree	Ripe fruits	OD,AP	Mahapatra and Panda2012; Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020
85	<i>Ficus heterophylla</i>	Butihasa	Moraceae	Shrub	Ripe fruits	OD	Sahoo et.al 2016
86	<i>Ficus hispida</i> L.f	Dimbiri(O)	Moraceae	Tree	Ripe and unripe fruits	OD,AP	Mahapatra and Panda 2012; Sahoo et.al 2016; Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020

87	<i>Ficus racemosa</i> L.	Pani dimbiri(O)	Moraceae	Tree	Ripe and unripe fruits	OD,AP	Mahapatra and Panda 2012; Sahoo et.al 2016
							Basha et.al 2009
88	<i>Ficus religiosa</i> L.	Aswastha(O)	Moraceae	Tree	Ripe fruits	OD,AP	Mahapatra and Panda 2012; Basha et.al 2009
89	<i>Ficus semicordata</i> Buch.	Podia(O)	Moraceae	Tree	Ripe and unripe fruits	OD	Mahapatra and Panda 2012; Sahoo et.al 2016
90	<i>Ficus virens</i> W.T. Aiton	Dumer	Moraceae	Tree	Ripe fruit	OD	Sahoo et.al 2016
91	<i>Flacourtia indica</i> (Burm.f.) Merr.	Bhaincha(O)	Flacourtiaceae	Shrub	Ripe fruit	OD	Mahapatra and Panda 2012; Sahoo et.al 2016; Noor and Satapathy 2020; Mallick et.al 2020
92	<i>Flacourtia jangomas</i> (Lour.) Raeusch.	Bada Baincha	Flacourtiaceae	Tree	It is used for marmalades, jams and preserves	OD	Mahapatra and Panda 2012; Sahoo et.al 2016
93	<i>Flacourtia ramontchi</i> L.	(TE)	Flacourtiaceae	Tree	-	AP	Basha et.al 2009
94	<i>Garcinia cowa</i> Roxb.	Rajakusuma (O),	Clusiaceae	Tree	Fruits are used for pickle	OD	Mahapatra and Panda 2012; Sahoo et .al 2016
95	<i>Garcinia xanthochymus</i> Hook.f. ex T. Anders.	Satyamba (O),	Clusiaceae	Tree	Ripe fruit are cooked	OD	Mahapatra and Panda 2012; Sahoo et .al 2016; Noor and Satapathy 2020

96	<i>Gardenia gummifera</i> L.f.	Bhurdu(O)	Rubiaceae	Tree	Pulp of ripe fruit	OD,AP	Mahapatra and Panda 2012; Sahoo et .al 2016; Mallick et.al 2020; Basha et.al 2009
97	<i>Gardenia latifolia</i> Ait. Hort.	Aakubikki (TE),Papla	Rubiaceae	Tree	Ripe fruit	AP,OD	Basha et.al 2009; Sahoo et .al 2016
98	<i>Garuga pinnate</i> Roxb.	Garuga (TE)	Burseraceae	Tree	Ripe fruit	AP,OD	Basha et.al 2009; Mallick et.al 2020

99	<i>Givotia moluccana</i> L. Sreemadhavan	Ventali (TE)	Euphorbaceae	Tree	-	AP	Basha et.al 2009
100	<i>Glycosmis mauritiana</i> (Lam.)M.		Rutaceae	Tree	Ripe fruit	OD	Mallick et.al 2020
101	<i>Glycosmis pentaphylla</i> (Retz.) DC.	Chauladhua	Rutaceae	Shrub	Fruit	OD	Noor and Satapathy 2020; Mallick et.al 2020
102	<i>Gnetum ula</i>	Mirig lendi	Gnetaceae	Climber	seed	OD	Sahoo et .al 2016
103	<i>Grewia asiatica</i>	Pharsakoli (O)	Tiliaceae	Tree	Ripe fruit	OD	Mahapatra and Panda 2012; Noor and Satapathy 2020
104	<i>Grewia damine</i> Gaertner	Budamara (TE)	Tiliaceae	Tree	-	AP	Basha et.al 2009
105	<i>Grewia disperma</i>	Uduppai (TA)	Tiliaceae	Herb	Unripe and ripe fruit	TN	Rekka and Senthil 2014
106	<i>Grewia flavescens</i> Juss.	Bankajana (TE)	Tiliaceae	Tree	-	AP	Basha et.al 2009
107	<i>Grewia helicterifolia</i> Wall.	Kula(o)	Malvaceae	Shrub Fruit	Shrub Fruit	OD	Noor and Satapathy 2020; Mallick et.al 2020
108	<i>Grewia hirsute</i> Vahl	Sunaregoda (O)	Tiliaceae	Tree	Ripe fruit	OD	Mahapatra and Panda 2012; Basha et.al 2009
109	<i>Grewia rothii</i> DC.	Phulari (O)	Tiliaceae	Shrub	Ripe fruit	OD	Mahapatra and Panda 2012
110	<i>Grewia sapida</i> Roxb.	Burso	Tiliaceae	Shrub	Ripe fruit	OD	Sahoo et .al 2016

11 1	<i>Grewia subinaequalis</i> DC.	Pharsa koli (O),	Tiliaceae	Tree	Fruit is used for preparation of beverage	OD	Mahapatra and panda 2012; Sahoo et.al 2016
11 2	<i>Grewia tenax</i> (Forsskal) Fiori	Kadara kaya (TE)	Tiliaceae	Shrub	Fresh and dry fruit	AP	Basha et.al 2009
11 3	<i>Grewia tiliifolia</i> Vahl	Dhaman (O)	Tiliaceae	Tree	Ripe fruit	OD,AP	Mahapatra and Panda 2012; Basha et.al 2009
11 4	<i>Grewia villosa</i> Willd.	Chenula (TE)	Tiliaceae	Shrub	Ripe fruit	AP	Basha et.al 2009
11 5	<i>Guazuma ulmifolia</i> Lam.	Debadaru (O),	Sterculiaceae	Tree	Ripe fruit	OD	Sahoo et.al 2016
11 6	<i>Gymnopetalum cochinchinense</i> (Lour.) Kurz.	Koubutka	Cucurbitaceae	Climber	Unripe fruit cooked	OD	Sahoo et.al 2016
11 7	<i>Holoptelia integrifolia</i> (Roxb.) Planch	Charla	Ulmaceae	Tree	Mature seed	OD	Sahoo et.al 2016
11 8	<i>Hibiscus sabdariffa</i> L.	Khatta-palanga, Toko-bhendi	Malvaceae	Shrub	Fruit	OD	Noor and Satapathy 2020

11 9	<i>Lantana camara</i> L. Var. <i>aculeate</i> (L.) Mold.	Putusu(o) (TE)	Verbenaceae	Shrub	Ripe fruit	OD,AP	Basha et.al 2009; Noor and Satapathy 2020
12 0	<i>Lantana montevidensis</i>	Arjunasedi (TA)	Verbenaceae	Shrub	Ripe fruits	TN	Rekka and Senthil 2014
12 1	<i>Leea macrophylla</i>	Hati Hat	Leeaceae	Shrub	Ripe fruit	OD	Sahoo et.al 2016
12 2	<i>Lepisanthes rubiginosa</i> (Roxb.) Leenh.	Nehenga-koli	Sapindaceae	Tree	Fruit	OD	Noor and Satapathy 2020; Mallick et.al 2020
12 3	<i>Lepisanthes tetraphylla</i>	Panikusuma (O)	Sapindaceae	Tree	Fleshy aril of ripe fruit	OD	Mahapatra and Panda 2012; Mallick et.al 2020



124	<i>Limonia acidissima</i> L.	Kaitha (O)	Rutaceae	Tree	Pulp of ripe fruit	OD, AP, TN	Mahapatra and Panda 2012; Sahoo et.al 2016; Rekka and Senthil 2014; Basha et.al 2009; Noor and Satapathy 2020
125	<i>Litsea glutinosa</i> (Lour.) C. B. Rob.	Jaysandha	Lauraceae	Tree	Ripe fruit	OD	Sahoo et.al 2016
126	<i>Luffa cylindrica</i> (L.) M. Roem. J	Tadari	Cucurbitaceae	Climber	Fruit	OD	Noor and Satapathy 2020
127	<i>Lusea glutinosa</i>	Baghoari (O)	Lauraceae	Tree	Ripe fruit	OD	Mahapatra and Panda 2012
128	<i>Maba buxifolia</i> (Rottb.)A.L. Juss.	(TE)	Ebenaceae	Tree		AP	Basha et.al 2009
129	<i>Madhuca indica</i> J. Gmelin.	Mahua (O)	Sapotaceae	Tree	Mture fruit	OD, AP	Mahapatra and Panda 2012; Sahoo et .al 2016; Basha et. al 2009; Noor and Satapathy 2020
130	<i>Mangifera indica</i> L.	Amba (O)	Anacardiaceae	Tree	Fruit	OD, AP	Mahapatra and Panda 2012; Sahoo et .al 2016; Basha et. al 2009; Noor and Satapathy 2020; Malli

							ck et.al 2020; Mallick et.al 2020
131	<i>Manilkara hexaandra</i> (Roxb.)Dubard	Khirakoli (O)	Sapotaceae	Tree	Fruit	OD	Mahapatra and Panda 2012; Basha et.al 2009; Noor and Satapathy 2020



150	<i>Opuntia vulgaris</i> Mill.	(TE)	Cataceae	Shrub	Ripe fruit	AP	Basha et.al 2009
151	<i>Pandanus fascicularis</i> Lam.	Kia(o)	Pandanaceae	Shrub	Fruit pulp and seeds	OD	Noor and Satapathy 2020
152	<i>Passiflora edulis</i>	Tappasupalam (TA)	Passifloraceae	Climber	Ripe fruits	TN	Rekka and Senthil 2014
153	<i>Passiflora foetida</i> L.	Balbalua	Passifloraceae	Climber	Ripe fruit	OD	Sahoo et .al 2016
154	<i>Persea Americana</i>	Vennaipathinikai (TA)	Lauraceae	Tree	Ripe fruits used to make juice	TN	R.Rekka and S.Senthil 2014
155	<i>Phoenix acaulis</i> Buch.Ham.ex.Roxb.	Bhuinkhajuri(O)	Arecaceae	Shrub	Ripe fruits	OD	Mahapatra and Panda 2012; Sahoo et .al 2016; Noor and Satapathy 2020;Mallick et. al 2020
156	<i>Phoenix farinifera</i>	Icham (TA)	Palmaceae	Shrub	Ripe fruits	TN	Rekka and Senthil 2014
157	<i>Phoenix loureirii</i> Kunth	(TE)	Arecaceae	Shrub		AP	Basha et.al 2009
158	<i>Phoenix paludosa</i> Roxb.	Hental, (O)	Arecaceae	Tree	Ripe fruit	OD	Mahapatra and Panda 2012; Mallick et.al 2020
159	<i>Phoenix sylvestris</i> (L.) Roxb.	Khajuri (O)	Arecaceae	Tree	Ripe fruits	OD,AP	Mahapatra and Panda 2012;Sahoo et .al 2016; S.Khadar Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020
160	<i>Phyllanthus acidus</i> (Linn.) Skeels	Nara koli, Ainsa koli (O)	Euphorbaceae	Tree	Used as jelly	-	Mahapatra and Panda 2012; Noor and Satapathy 2020; Mallick et.al 2020

161	<i>Phyllanthus emblica</i> L.	Amla (O)	Euphorbaceae	Tree	Mature fruit	OD,AP	S.Khadar Basha et.al 2009; Mahapatra and Panda 2012; Sahoo et .al 2016;
							Noor and Satapathy 2020; Mallick et.al 2020
162	<i>Physalis minima</i>	Kupanti (TE)	Solanaceae	Herb	-	AP	S.Khadar Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020
163	<i>Pithecellobium dulce</i> (Roxb.) Benth.	(TE) Sima kayan	Mimosaceae	Tree	Ripe fruit aril	AP,OD	S.Khadar Basha et.al 2009; Sahoo et .al 2016; Noor and Satapathy 2020; Mallick et.al 2020
164	<i>Plectronia didyma</i>	Nikkanaimaram (TA)	Rubiaceae	Tree	Ripe fruits	TN	R.Rekka and S.Senthil 2014
165	<i>Polylathia cerasoides</i> (Roxb.) Beddome	Tapa (OD)	Annonaceae	Tree		AP,OD	S.Khadar Basha et.al 2009; Sahoo et .al 2016
166	<i>Premna latifolia</i> (Roxb.)	Gandhana	Verbenaceae	Tree	Ripe	OD	Sahoo et .al 2016
167	<i>Protium serratum</i>	Kathakusua (O)	Burseraceae	Tree	Ripe fruit	OD	Mahapatra and Panda 2012; Sahoo et .al 2016; Mallick et.al 2020
168	<i>Psidium guajava</i> L.	Pijudi	Myrtaceae	Tree	Fruit	OD	Noor and Satapathy 2020
169	<i>Pyrus communis</i>	Baerikkai (TA)	Rosaceae	Tree	Ripe fruit	TN	R.Rekka and S.Senthil 2014
170	<i>Rubus ellipticus</i>	Kantheikoli	Rosaceae	Shrub		OD	Sahoo et .al 2016

17 1	<i>Salacia chinensis</i> Linn.		Celastraceae	Shrub		OD	Mallick et.al 2020
17 2	<i>Scindapsus officinalis</i> (Roxb.)	Daru Japa	Arecaceae	Climber	cooked	OD	Sahoo et .al 2016
17 3	<i>Schleichera oleosa</i> (Lour.)	Karanachi (O)	Sapindaceae	Tree	Pulp inside the rind is consumed	TN,OD	Mahapatra and Panda 2012; Sahoo et .al 2016; Noor and Satapathy 2020; Mallick et.al 2020

17 4	<i>Scutia myrtina</i> (Burm f.)Kurz	(TE)	Rhamnaceae	Shrub	-	AP	S.Khadar Basha et.al 2009
17 5	<i>Securinega leucopyrus</i> (WILLD.)Muell.	Poolapazhalem (TA)	Euphorbiaceae	Shrub	Ripe fruits are eaten	TN	R.Rekka and S.Senthil 2014
17 6	<i>Semecarpus anacardium</i> L.f.	Bhalia (O)	Solanaceae	Tree	Fleshy thalamus	OD,AP, TN	.Mahapatr a and Panda 2012;Saho o et. al 2016; 2.R.Rekka and S.Senthil 2014 S.Khadar Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020
17 7	<i>Shorea robusta</i> Gaertn.	Sal (O)	Dipterocarpaceae	Tree	-	OD	Sahoo et.al 2017; Noor and Satapathy 2020
17 8	<i>Solanum pubescens</i> Willd.	(TE)	Solanaceae	Shrub	-	AP	Basha et.al 2009
17 9	<i>Solanum nigrum</i> L.	Kasaka (TE)	Solanaceae	Herb	Fruit	AP,OD	Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020

180	<i>Solanum torvum</i> Sw.	Sundakkai (TA)	Solanaceae	Tree	Green fruits salted dried roasted in oil and eaten	TN,OD	Mahapatra and Panda 2012 Rekka and Senthil 2014; Noor and Satapathy 2020
181	<i>Solanum virginianum</i> L.	Bheji-baigana	Solanaceae	Herb	Fruit	OD	Noor and Satapathy 2020
182	<i>Solena amplexicaulis</i> (Lam.)	Bana kunduri	Cucurbitaceae	Climber	Unripe fruit is cooked	OD	Sahoo et .al 2016
183	<i>Spondias dulcis</i> Parkinson	Ambada(O)	Anacardiaceae	Tree	Mature fruit	OD	Mahapatra and Panda 2012;Sahoo et .al 2016
184	<i>Sterculia foetida</i> L.	Baksa-badam	Sterculiaceae	Tree kern	Fruit kernels	OD	Noor and Satapathy 2020

185	<i>Sterculia urens</i> Roxb.	Genduli	Sterculiaceae	Tree	Ripe fruit	OD	Sahoo et.al 2016
186	<i>Streblus asper</i> Lour.	Sahada	Sterculiaceae	Tree	Fruit	OD	Noor and Satapathy 2020
187	<i>Syzygium alternifolium</i> (Wight) Walp.	Mogi (TE)	Myrtaceae	Tree	-	AP	Basha et.al 2009
188	<i>Syzygium cerasoides</i>	Panijamu (O)	Myrtaceae	Tree	Ripe fruits	OD	Mahapatra and Panda 2012; Sahoo et .al 2016
189	<i>Syzygium cumini</i> (L.)Skeels	Jamun (O)	Myrtaceae	Tree	Ripe fruits	OD,TN, AP	Mahapatra and Panda 2012; Sahoo et .al 2016; Noor and Satapathy 2020; Basha et.al 2009; Mallick et.al 2020
190	<i>Syzygium fruticosum</i>	Kude daru(O)	Myrtaceae	Shrub	Ripe fruit	OD	Sahoo et .al 2016

19 1	<i>Tamarindus indica</i> L.	Chinta Tentuli(0)	(TE), Caesalpinacea e	Tree	Fruit pulp	AP,OD	Basha et.al 2009; Noor and Satapathy 2020; Mallick et.al 2020
19 2	<i>Tamilnadia uliginosa</i>	Tolaka (O)	Rubiaceae	Tree	Ripe and immature fruit	OD	Mahapatra and Panda 2012; Sahoo et .al 2016
19 3	<i>Terminalia bellerica</i> (Gaertn.)Roxb.	Beheda	Combretaceae	Tree	Seed	OD	Sahoo et .al 2016; Noor and Satapathy 2020; Mallick et.al 2020
19 4	<i>Terminalia catappa</i> L.	Deshi-badam, Jangli-badam	Combretaceae	Tree	Seed	OD	Noor and Satapathy 2020; Mallick et.al 2020
19 5	<i>Terminalia chebula</i>	Harda	Combretaceae	Tree	Kernel	OD	Sahoo et .al 2016; Noor and Satapathy

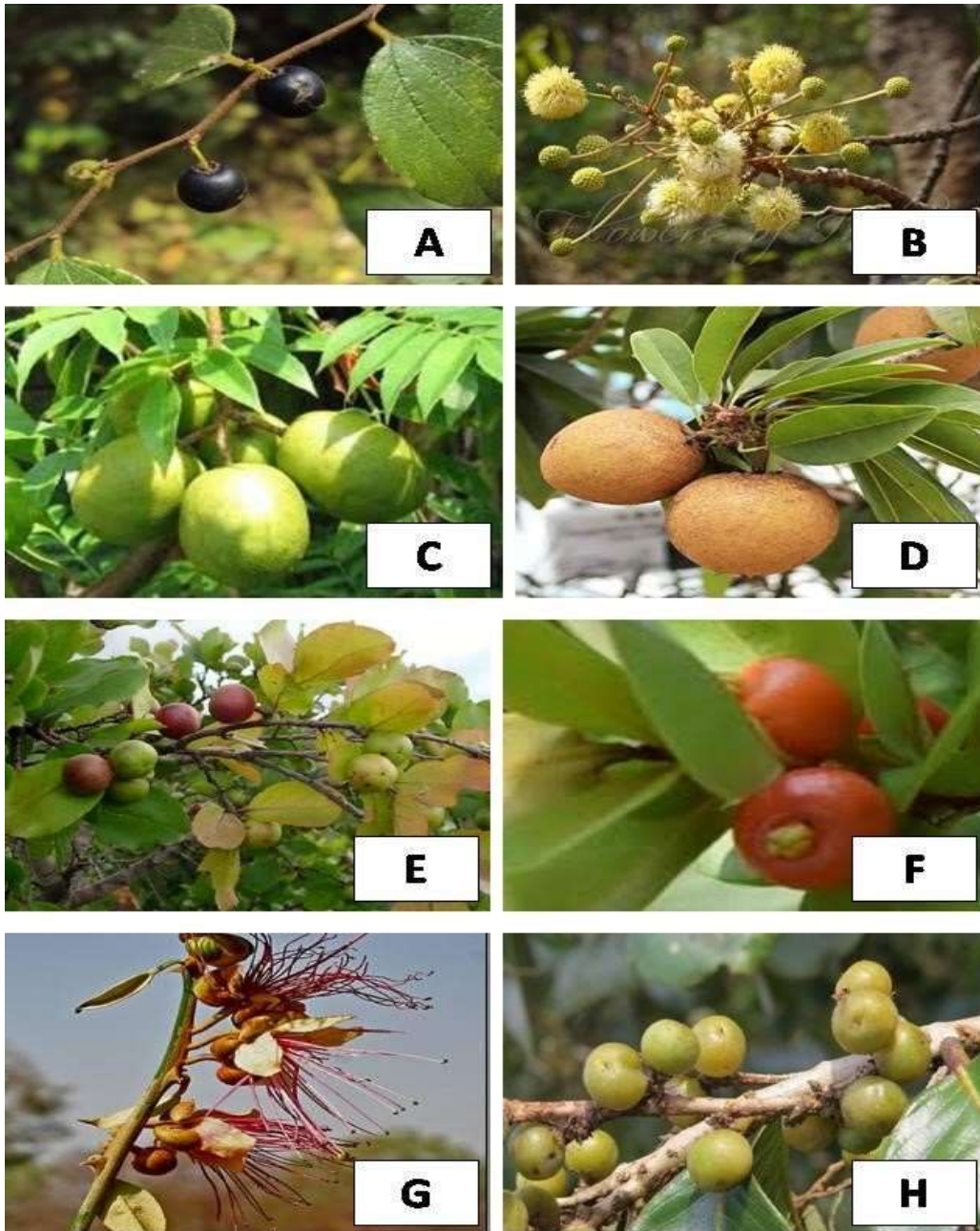
							2020; Mallick et.al 2020
19 6	<i>Tetrastigma lanceolarium</i> (Roxb.)Planch		Vitaceae	Climber	Ripe fruit	OD	Mallick et.al 2020
19 7	<i>Thladiantha cordifolia</i>	Buru karda	Cucurbitaceae	Climber	Unripe fruit cooked	OD	Sahoo et .al 2016
19 8	<i>Toddalia asiatica</i>	Baghranchuda	Rutaceae	Climber	Ripe fruit	OD	Sahoo et .al 2016; Noor and Satapathy 2020





207	<i>Ziziphus oenoplia(L.)Mill.</i>	Kanteikoli (O)	Rhamnaceae	Shrub	Ripe and mature fruit	OD, TN, AP	Mahapatra and Panda 2012; Sahoo et al 2016; Noor and Satapathy 2020; Rekkala and Senthil 2014; Bashal et al 2009; Mallick et al 2020
208	<i>Ziziphus rugosa Lam.</i>	Tinkoli (O)	Rhamnaceae	Climber	Ripe and mature fruit	OD	Mahapatra and Panda 2012; Sahoo et al 2016; Noor and Satapathy 2020; Mallick et al 2020
209	<i>Ziziphus xylopyra</i>	Karkata	Rhamnaceae	Shrub	Ripr fruit	OD	Sahoo et al 2016

\*TE=TELUGU; TA=TAMIL; O=ODIA; ES= EASTERN GHATS



**Plate-1A.** *Ziziphus oenoplia*, B.*Xylia xylocarpa*; C.*Spondis dulcis*, D.*Manilkara hexandra* E. *Eugenia rothii* F. *Alangia salvifolium*, G. *Capparis zeylanica*, H.*Bridelia retusa*

**Fruits directly taken as food**

Some of the fruits are taken directly by the people from different parts of the India. Some of these are *Ficus hirta*, *Ficus religiosa*, *Nephelium longana* Cambessesdes, *Spondis pinnata*, *Stixis suaveolens*, *Baccaurea ramiflora*, *Cordia dichotoma*, *Ficus elastica* consumed by Wokha tribe of Nagaland (Takatemjen et.al, 2009).

*Alangium salvifolium*, *Allophylus serratus*, *Erycibe peniculata*, *Buchanania lanzan*, *Capparis sepiaria*, *Ficus bengalensis*, *Mangifera indica*, *Diospyros melanoxylon* fruits eaten as raw in odisha (Mohapatra and panda, 2012).

*Syzygium cumini*, *Punica granatum*, *Artocarpus heterophyllus*, *Persea Americana* are consumed directly in South India (Yallesh et.al.,2018).

*Barberis lyceum*,*Buglossoides arvensis*, *Carissa spinarum*, *Celastrus paniculatus*,*Ficus auriculata*,*Ficus racemosa*,*Flacourtia indica*,*Juglans regia*, *Morus alba*, *Morus nigra*,*Nepeta laevigata*, *Phoenix sylvestris*,*Prunus armeniaca*, *Prunus persica*,*Pyrus pashia*, *Rubus ellipticus*, *Syzygium cumini*, *Terminalia arjuna*, *Terminalia bellirica* used by J&K people (Bhatia et.al., 2018).

Aglia perviridis, Alangium salviifolium, Antidesma menasu, Aporosa acuminate, Baccaurea courtallensis, Elaeocarpus serratus, Flacourita Montana, Glycosmis pentaphylla, Madhuca longifolia, Merremia vitifolia, Passiflora foetida, Phoenix sylvestris, Physalis minima, Rubus ellipticus, Rubus glomeratus, Rubus niveus, Salacia fruticosa, Schleicheria oleosa, Solanum torvum, Syzygium cumini, Syzygium mundagam, Ziziphus maruteiana, Ziziphus oenoplia consumed by Walayar valley of Southern western ghats of India (Venkatachalapathi et.al., 2017).

Rubus ellipticus, Fragaria ananassa, Prunus persica, Pyracantha crenulata, Morus alba, Rubus occidentalis, Rubus niveus, Pyrus pyrifolia, Amelanchier Canadensis consumed in uttarakhand (Sharma et.al., 2017).

Alangium salvifolium, Anacardium occidentale, Ananus comosus, Artocarpus heterophyllus, Buchanania angustifolia, Calocarpum sapota, Citrus maxima, Clausena dentate, Lantana montevidensis, Limonia acidissima, Zizyphus glabrata, Zizyphus mauritiana, Zizyphus oenoplia consumed by malayali tribe of Yercaud hills of Tamil nadu (Rekka and Senthil, 2014).

Spondias axillaris, Baccaurea ramiflora, Diploknema butyraceae, Rhus semialata, Pyrus pashia, Prunus persica, Prunus cerasoides, Morus alba, Ficus roxburghii, Machilus edulis, Juglans regia consumed in Sikkim (Suresh et.al., 2014).

### **Fruits used as beverages**

Fruit pulp of Aegle marmelos, fruit of Phoenix sylvestris, and seeds of Ocimum basilicum are used for preparation of traditional beverage locally called sarbat (Bhatia, 2018).

Aegle marmelos, Grewia asiatica, Limonia acidissima, Madhuca indica, Phyllanthus emblica are used as beverages in odisha (Mahapatra and panda, 2012).

Punica granatum, Rosa canina, Morus alba, Amelanchier spicata, Aegle marmelos, Vitis vulpine, Tamarindus indica used as beverage in Uttarakhand (Sharma et.al., 2017).

Aegle marmelos, Syzygium cumini, Punica granatum, Garcinia indica are used as drinks in Western Ghats of South India (Yallesh et.al., 2018).

### **Fruits used as pickle**

Citrus medica, Cyphomandra betacea, Elaeagnus latifolia, Eriolobus indica, Heracleum wallichii, Horsfieldia kingie, Phyllanthus emblica, Rhus chinensis, Solanum nigrum, Tamarindus indica, Tetradium fraxinifolium, Trichosanthes tricuspidate, Ziziphus jujube used as pickle in Kalimpong district of West Bengal (Bhujel et.al., 2018).

Aegle marmelos, Antidesma acidum, Artocarpus lacucha, Carissa spinarum, Citrus sinensis, Phyllanthus emblica, Protium serratum, Schleicheria oleosa, Spondis pinnata used as pickle in Odisha (Mahapatra and Panda, 2012).

Fruits of Artocarpus lacucha, Phyllanthus emblica and Citrus medica are preserved in mustard oil along with salt as pickle in J&K, India (Bhatia et.al., 2018).

### **Fruits used as jam or jellies**

Artocarpus lacucha, Phyllanthus emblica are used as jam in Odisha (Mahapatra and Panda, 2012).

Cydonia oblonga and Phyllanthus emblica are preserved for months or years in the form of jam or murabba in J&K, India (Bhatia et.al., 2018).

Fruits of Prunus armeniaca, Amelanchier spicata, Vitis vulpine, Viburnum opulus, Rubus niveus, Syzygium cumini, Cydonia oblonga are used as jam or jellies in Uttarakhand, India (Sharma et.al., 2017).

Elaeagnus latifolia, Morus alba is used for the preparation of jam in Kalimpong district of West Bengal, India (Bhujel et.al., 2018).

### **Fruits used as chutney**

Seeds of Punica granatum, Zanthoxylum armatum and Flemingia prostrate are consumed as chutney in J&K (Bhatia et.al. 2018).

Fruits Cyphomandra betaceae, Machilus edulis, Physalis minima, Zanthoxylum acanthopodium and seeds of Perilla frutescens are used as chutney in Kalimpong district of West Bengal, India (Bhujel et.al., 2018).

Limonia acidicum Spondis pinnata are used as chutney (Mahapatra and Panda, 2012).

**Fruits used as vegetable**

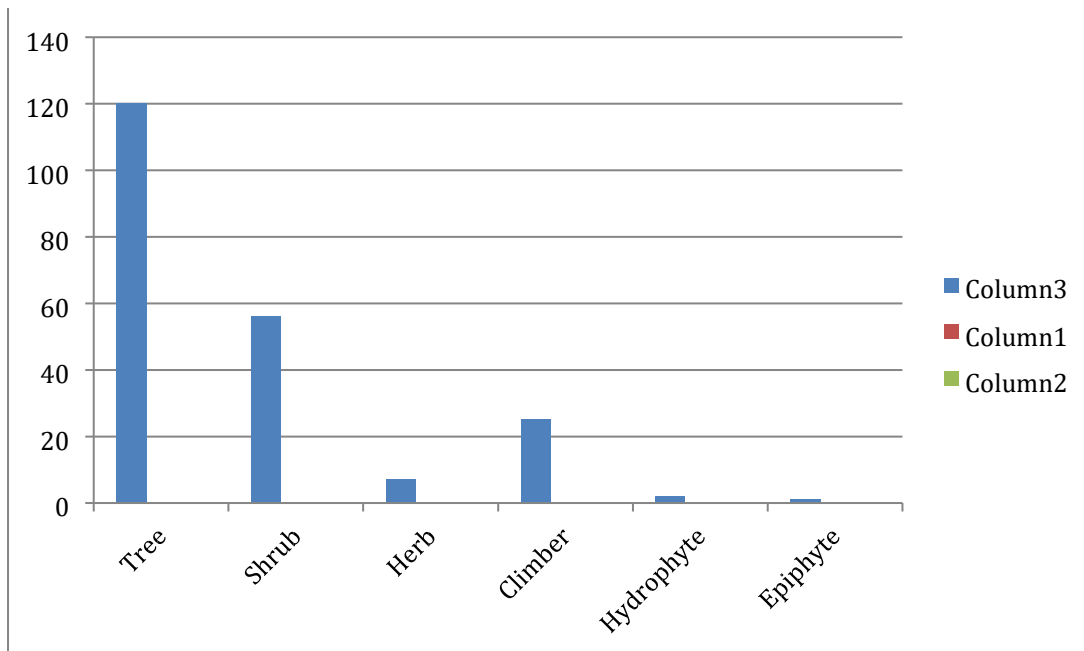
Cappari zeylanica, Ficus hispida, Ficus racemosa, Ficus semicordata, Madhuca indica, Solanum torvu, Tamilnadia uliginosa and seeds of Diospyros melanoxylon are used as vegetables in curries (Mahapatra and Panda,2012).

**Fruits used as medicine**

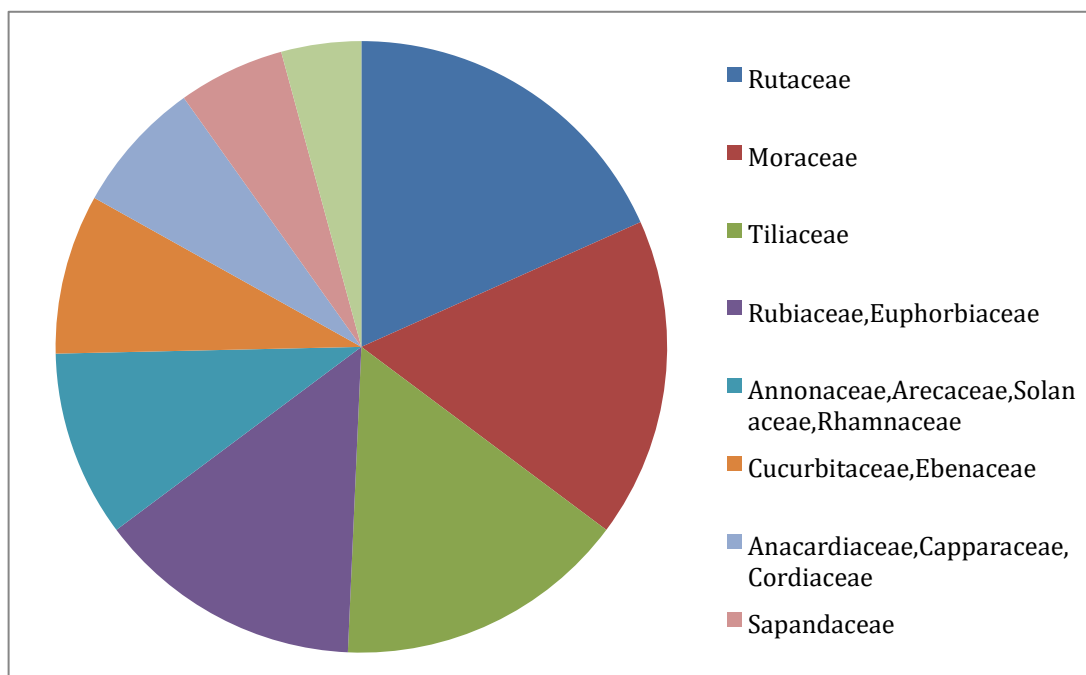
Aegle marmelos, Limonia acidissima, Madhuca indica, Phyllanthus imblica, Syzygium cerasoides, Syzygium cumini, Ziziphus oenopliaare used as medicine by tribals (Mahapatra and Panda,2012).

Some fruits like Diploknema butyraceae, Terminalia chebula, Spondias axillaris are used as medicine (Suresh et.al.,2014).

Fruits of Aegle marmelos, Baccaurea ramiflora, Calamus erectus, Choerospondias axillaris, Dioscorea bulbifera, Diploknema butyracea, Eriolobus indica, Ficus auriculata, Ficus hirta, Ficus semicordata, Ficus subincisa, Fragaria nubicola, Heracleum wallichii, Horsfieldia kingie, Juglans regia, Machilus edulis, Momordica cochinchinensis, Morus alba. Musa sikkimensis, Myrica esculenta, Phyllanthus emblica, Rhus chinensis, Rubus ellipticus, Rubus wardii, Solanum nigrum, Spondis pinnata, Syzygium cumini, Tamarindus indica, Terminalia bellirica, Terminalia chebula. Tetradium fraxinifolium, Zanthoxylum acanthopodium are used as medicine in kalimpong district of West Bengal (Bhujel et.al.,2018).



**Fig. 2: Different life forms of wild edible fruits**



**Fig. 3: Family wise classification**

### Conclusion

To cope up the demand of food for the increasing human population, the wild edible fruits fulfill this nutritional requirement. So the fruit plants short out various problems regarding food and medicine. From this literature review we found that wild edible fruit plants of some states which cover Eastern Ghats are not discovered so that many useful plants are not enlighten yet. Further, traditional knowledge on wild edible fruits are vanishing from generation to generation due to modernization. Young generations are not interested this old age traditional food practices. They are mostly attracted by delicious fast food. Therefore, emphasize should be given for documentation and protection of this knowledge prior to it's vanish from earth.

### REFERENCES

1. Beluhan S, Ranogajec A. Chemical composition and non - volatile components of Croatian wild edible mushrooms. *Food Chem.* 2010;124:1076-82.
2. Bhatia H, Sharma Y, Manhas RK, Kewal K. *Journal of Ethnobiology and Ethnomedicine* 2018;14:73.
3. Tiwari JK, Ballabha R, Tiwar P. Some Promising Wild Edible Plants of Srinagar and its Adjacent Area in Alaknanda Valley of Garhwal Himalaya, India *J Am Sci.* 2010;6(4):167-174.
4. Grivetti LE, Ogle BM. Value of traditional foods in meeting macro and micro nutrient needs: the wild plant connection. *Nutr Res Rev.* 2000;13(1):31-46.
5. Singh A. Cultural significance and diversity of ethnic foods of North East India. *Indian J. Trad. Knowl.* 2006;6:79-94.
6. Craig W, Beck L. Phytochemicals: health protective effects. *Can. J. Diet. Pract. Res.* 1999;60:78-84.
7. Quebedeaux B, Bliss FA. Horticulture and human health. Contributions of fruits and vegetables. *Proc. 1<sup>st</sup> Intl. Symp. Hort. And human Health.* Prentice Hall, Englewood NJ. 1988.
8. Quebedeaux B, Eisa HM. Horticulture and human health: Contributions of fruits and vegetables. *Proc. 2<sup>nd</sup> Intl. Symp. Hort. And human Health.* Hort. Science 1990;25:1473-1532.
9. Wargovich MJ. Anticancer properties of fruits and vegetables. *Hort. Science* 2000;35:573-575.
10. Gangwar KK, Deepali RS. Ethnobotanical plant diversity in kumaun Himalaya of Uttarakh, India. *Nat Sci.* 2010;8(5):66-78.
11. Rai YK, Singh KK, Rai LK. Diversity of Edible Wild Plants in Sikkim Himalaya. India. pp.3-19. In *Sikkim Biodiversity, Significance and Sustainability* 9eds. Tamang, P. Shrivastava, A.K. and Lepcha, S.R.) Sikkim State. 2012.
12. Rasingam L. Ethnobotanical studies on the wild edible Irula tribes of Pillur Valley, Coimbatore district, Tamil Nadu, India., *Asian Pacific Journal of Tropical Biomedicine.* 2012;1493-S1497.

13. Orech FO, Hansen AJ, Friis H. Ethnoecology of traditional leafy vegetables Of the Luo people of Bondo district, Western Kenya. *International Journal of Food Sciences and Nutrition*. 2007;58:522-530.
14. Kabuye CHS. Potential wild food plants of Kenya. In *Conservation and utilization of indigenous medicinal plants and wild relatives of food crops* Edited by: Kinyua AM, Kofi - Tsekpo WM, Dangana LB. Nairobi, UNESCO. 1997;107-112.
15. FAO, Use and potential of wild plants. Information Division, Food and Agricultural Organization of the United Nations, Rome, Italy. 1990.
16. Sharma IP, Chandra K, Semwal SC, Goswami N. *International journal of Complementary & Alternative Medicine*. 2017;8(3).
17. Ajay K, Panda C. Wild edible fruit diversity and its significance in the livelihood of indigenous tribals: Evidence from eastern India. *Food Security*. 2012;4(2):219-234.
18. Kuhnlein H, Erasmus B, Spigelski D. *Indigenous peoples food systems*. Rome, Italy: FAO. Centre for Indigenous People's Nutrition and Environment 2009.
19. Rathore M. Nutrient content of important fruit trees from arid zone of Rajasthan. *J Hort. Forestry* 1. 2009;103-108.
20. Ajesh SA, Kumuthakalavalli R. *Int J Pharma Bio Sci*. 2012;3(3):479-48.
21. Jana SK, Chauhan AS. Wild Edible Plants of Sikkim Himalaya. *Journal of Non Timber Forest Product*. 1988;5(2):20-28.
22. Sweeny MC. Forest product sale as financial insurance: Evidence from small holders. *ODI WILDLIFE POLICY Briefing*. 2004;10:1-4.
23. Takasaki Y, Barham BL, Coomes OT. Risk coping strategies in tropical forests; Floods illness and resource extraction. *Environment and Development Economics*. 2004;9,203-224.
24. Mojeremane W, Tshwenyane SO. Azanza garckeana: A valuable edible indigenous fruit tree of Botswana. *Pakistan Journal of Nutrition*, 2004;3(5),264-267.
25. Getachew A, Kelbessa U, Dawit D. Ethnobotanical study of edible indigenous plants in some selected districts of Ethiopia. *Human Ecology*. 2005;33(1),83-118.
26. Redzic SJ. Wild edible plants and their traditional use in the human nutrition in Bosnia Herzegovina. *Ecology of food and Nutrition*. 2007;45(3)189-232.
27. Khadar BS, Sadasivaiah B, Rao RP. Wild Edible fruit resources in Southern eastern ghats of Andhra Pradesh. 2009.
28. Rekka R, Senthil S. *International Journal of Herbal Medicine*, 2014;2(1):39-42.
29. Takatemjen NS. *East Himalayan Society for Spermatophyte Taxonomy*. 2009; 3(1);50-62.
30. Yallesh HS, Kulapati H, Nataraj SK, Shivakumar BS, Santhosh H, Ganapathi M, Kamble AK. *Journal of pharmacognosy and phytochemistry*. 2018;3:404-408.
31. Bhatia H, Sharma YP, Manhas RK, Kewal K. *Journal of Ethnobiology and Ethnomedicine*. 2018;14:73.
32. Sharma IP, Chandra K, Semwal SC, Goswami N. *International Journal of Complementary & Alternative Medicine*. 2017;8(3):00260.
33. Bhujel D, Chhetri G, Rai YK. *An international journal of environment and biodiversity*. 2018;9(4):314-326.34.
34. Suresh CP, Bhutia KD, Shukla G, Pradhan K, Chakravarty S. *Journal of tree sciences*. 2014;33(1);43-48.
35. Sreekumar VB, Sreejith KA, Hareesh VS, Sanil SM. *Genet Resour Crop Evol*. 2020.
36. Arinathan V, Mohan VR, De Britto J, Murugan C (2007) Wild edibles used by Palliyars of Western Ghats, Tamil Nadu. *Indian J Tradit Knowl* 6:163-168
37. Anuradha S, Bhagat UR, Kulkarni DK (2010) Ethnobotany of endemic and threatened plants from Western Ghats of Maharashtra. *J Econ Taxon Bot* 34:434-439
38. B. Hogaonkar PY, Marathe VR, Kshirsagar PP (2010) Documentation of wild edible plants of Melghat forest, district, Maharashtra state, India. *Ethnobot Leaf* 14:751-758