

## Wild Edible Fruits of Pakke Tiger Reserve in Arunachal Pradesh, India

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### Abstract

Pakke Tiger Reserve in the East Kameng District of Arunachal Pradesh is situated in the foothills of the Eastern Himalayas. The park is one of the biodiversity hotspots in the world map. It is contiguous with Nameri National Park in Assam to the South. The present paper deals with the identification, documentation and exploration of wild edible fruits of Pakke Tiger Reserve (Arunachal Pradesh). Total 34 Species of wild edible fruits were documented belonging to 28 genera and 22 families.

**Key words:** Pakke Tiger Reserve, Wild Edible Fruits, Arunachal Pradesh.

### INTRODUCTION

From the past, edible wild fruits have played a very vital part in supplementing the diet of the people. The dependence of these fruits has gradually decline as more exotic fruits have been introduced. But many people in tribal areas still use those as a supplement to their basic need of food (Deshmukh & Waghmode 2011). World over, tribal population still stores a vast knowledge on the utilization of local plants as food material and other scientific uses (Sundriyal *et al* 1998). A scientific study of wild fruits is important for the potential sources which could be utilized at the time of scarcity or during normal days or cultivated as a source of food material for an ever increasing population (Rashid *et al.* 2008). Majority of fruits have satisfactory edible proteins with high quality and generally have a very rich source of fibre, moisture, vitamin C and sugars (Anonymous 1948-1976).

Pakke Tiger Reserve is located in between latitude 26° .56' to 27° .59' North and Longitude 92° .36' to 93° .24' East, in the East Kameng District of Arunachal Pradesh and adjoins the Nameri Reserve Forest on its North–Eastern point covering an area of 861.95 km<sup>2</sup>. It is bounded by Kemeng River in the West, Pakke River in the East with Assam in the South. The area of present Pakke Tiger Reserve was originally constituted as Pakke Reserve Forest (1966) and was declared as Game Sanctuary in 1977. Subsequently it was declared, as “Pakhui Wildlife Sanctuary and Tiger Reserve” in 1999, and finally the area was renamed as “Pakke Tiger Reserve” in 2002 vide notification no.For/CWL/D/26/94/1742-91 dated 23.04.2002 under the “Project Tiger scheme” of Government of India.

In Pakke Tiger Reserve, there are almost 25 fringe villages, majority of which belong to Nyishi community. People of this community consume many wild fruits, which are less known for their edible quality. Previously some preliminary ethnobotanical work was conducted in Pakke Tiger Reserve by Jeri *et al* (2011). Present study has been conducted to document the wild edible fruits from the Pakke Tiger Reserve in Arunachal Pradesh.

## MATERIALS AND METHODS

Several field trips were undertaken throughout the Reserve in different seasons during 2009 to 2011 to collect information and specimens related to wild edible fruits. To assess the traditional knowledge on wild edible fruits, frequent interactions and discussions were made with the local people with the using standard questionnaires. During the survey vernacular names (in *Nyishi* and *Assamese* name), flowering and fruiting period, their uses and marketability, preferences etc were recorded. Basically recognized by the local people, plant specimens were collected and processed into mounted on herbarium sheets following the standard Herbarium techniques (Jain & Rao 1977) and identified by matching with pre-identified specimens in Herbarium of the Department of Botany, Gauhati University and available literatures like *Flora of Assam* (Kanjilal *et al* 1934 – 1940; Bor 1940), *Flora of British India* (Hooker 1872 - 1897) and *The Flora of Eastern Himalaya* (Hara 1966, 1971). The voucher specimens were deposited in the Herbarium of the Botany Department, Gauhati University.

## RESULT AND DISCUSSION

The information about the wild edible fruits available in Pakke Tiger Reserve in Arunachal Pradesh is presented below with their botanical name, family, vernacular name (in *Nyishi* and *Assamese*), flowering and fruiting period and their uses in Table 1:

**Table 1.** Wild Edible Fruits of Pakke Tiger Reserve, Arunachal Pradesh

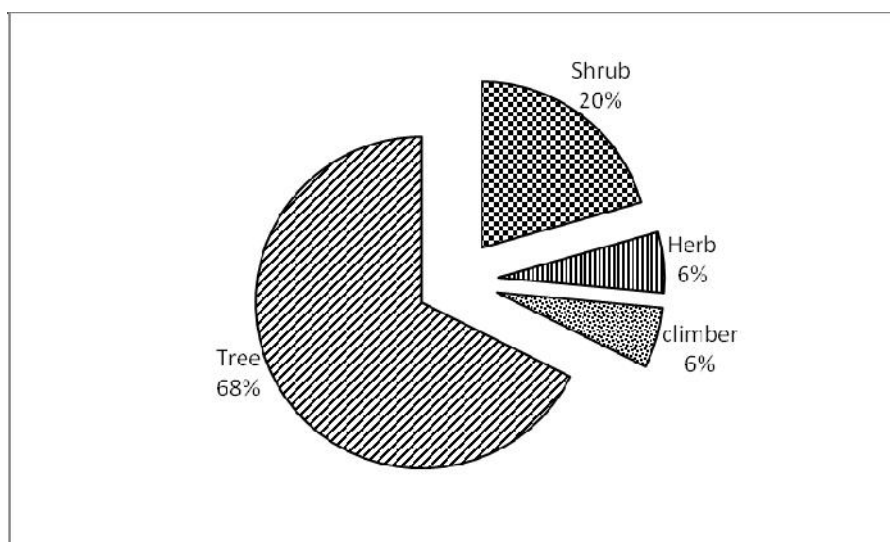
Botanical Name [Family]; Exsiccatae	Vernacular name ( <i>Nyishi</i> = Ni; <i>Assamese</i> = A)	Habit	Flowering (Fl) & Fruiting (Fr)	Remarks
<i>Antidesma acidum</i> Retzius [Euphorbiaceae]; <i>Baishya-366</i>	<i>Rodret</i> (Ni), <i>Abu-tenga</i> (A)	Shrub	December – February (Fl & Fr)	Ripe fruits acidic and edible
<i>Ardisia polycephala</i> Wallich ex A.DC. [Myrsinaceae]; <i>Baishya-375</i>	-	Shrub	May – September (Fl & Fr)	Ripe fruits eaten raw
<i>Artocarpus chama</i> Buchanon-Hamilton [Moraceae]; <i>Baishya-96</i>	<i>Bodo-bolo</i> (Ni), <i>Chama –kothal</i> (A)	Tree	April – August (Fl & Fr)	Ripe fruits eaten raw
<i>Averrhoa carambola</i> Linnaeus [Averrhoaceae]; <i>Baishya-91</i>	<i>Tanyak</i> (Ni), <i>Kordoi</i> (A)	Tree	August – January (Fl & Fr)	Ripe fruits eaten
<i>Baccaurea ramiflora</i> Loureiro [Euphorbiaceae]; <i>Baishya-54</i>	<i>Biri seen</i> (Ni), <i>Leteku</i> (A)	Tree	April – September (Fl & Fr)	Ripe fruits sweet, eaten raw
<i>Bischofia javanica</i> Blume [Euphorbiaceae]; <i>Baishya-236</i>	<i>Morn seen</i> (Ni), <i>Urium</i> (A)	Tree	March - September (Fl. & Fr)	Ripe fruits eaten
<i>Bauhinia variegata</i> Linnaeus [Caesalpiniaceae]; <i>Baishya-10</i>	<i>Gai seen</i> (Ni), <i>Kanchan</i> (A)	Tree	February - September (Fl & Fr)	Roasted seeds eaten
<i>Bridelia retusa</i> (Linnaeus) Sprengel [Euphorbiaceae]; <i>Baishya-208</i>	<i>Kuhir</i> (A)	Tree	October - March (Fl & Fr)	Ripe fruits eaten
<i>Bridelia stipularis</i> (Linnaeus) Blume [Euphorbiaceae]; <i>Baishya-404</i>	<i>Mou-silikha</i> (A)	Climber	October - February(Fl & Fr)	Fruits eaten raw and pickled, taste like amla
<i>Bombax ceiba</i> Linnaeus [Bombacaceae]; <i>Baishya-121</i>	<i>Simolu</i> (A)	Tree	February- January (Fl & Fr)	Roasted mature seeds eaten
<i>Castanopsis indica</i> (Roxburgh) DC. [Fagaceae]; <i>Baishya-270</i>	<i>Kira seen</i> (Ni), <i>Singra</i> (A)	Tree	April - November (Fl & Fr)	Nuts cooked and eaten
<i>Castanopsis tribuloides</i> A.DC. [Fagaceae]; <i>Baishya-288</i>	<i>Kira seen</i> (Ni), <i>Phul singri</i> (A)	Tree	September - January(Fl & Fr)	Nuts cooked and eaten
<i>Dillenia pentagyna</i> Roxburgh [Dilleniaceae]; <i>Baishya-331</i>	<i>Okshi</i> (A)	Tree	March-July (Fl & Fr)	Ripe fruits eaten raw

## 350 Wild Edible Fruits of Pakke Tiger Reserve

Botanical Name [Family]; Exsiccatae	Vernacular name (Nyishi = Ni; Assamese = A)	Habit	Flowering (Fl) & Fruiting (Fr)	Remarks
<i>Duabanga grandiflora</i> (Roxburgh ex DC.) Walpers [Sonneratiaceae]; <i>Baishya-42</i>	<i>Jajum seen</i> (Ni), <i>Khokon</i> (A)	Tree	April - November(Fl & Fr)	Ripe fruits eaten
<i>Elaeocarpus floribundus</i> Blume [Elaeocarpaceae]; <i>Baishya-379</i>	<i>Anke seen</i> (Ni), <i>Jalfai</i> (A)	Tree	April – November (Fl & Fr)	Fruit eaten cooked or as pickle
<i>Duchesnea indica</i> (Andrews) Foecke [Rosaceae]; <i>Baishya-16</i>	<i>Pemi limi</i> (Ni) <i>Gorukhish</i> (A)	Herb	April - September (Fl & Fr)	Ripe fruits eaten raw
<i>Ficus racemosa</i> Linnaeus [Moraceae]; <i>Baishya-190</i>	<i>Inbung</i> (Ni), <i>Jagyadimoru</i> (A)	Tree	August- October (Fl & Fr)	Fruits fried with ghee and eaten
<i>Flacourtia jangomas</i> (Loureiro) Raeuschel [Flacourtiaceae]; <i>Baishya-143</i>	<i>Takake</i> (Ni), <i>Poniyol</i> (A)	Tree	June - October (Fl & Fr)	Ripe fruits eaten raw
<i>Garcinia xanthochymus</i> Hooker f. [Clusiaceae]; <i>Baishya-273</i>	<i>Tepor-tenga</i> (A)	Tree	April - July (Fl & Fr)	Ripe fruits are eaten raw or cooked with other vegetables
<i>Glycosmis pentaphylla</i> (Retzius) DC. [Rutaceae]; <i>Baishya-141</i>	<i>Kedi</i> (Ni), <i>Hengnapoka</i> (A)	Shrub	January - April (Fl &Fr)	Ripe berries eaten raw
<i>Leea acuminata</i> Wallich ex Clarke [Leeaceae]; <i>Baishya-149</i>	<i>Kath thengia</i> (A)	Shrub	August - March (Fl & Fr)	Freshly collected ripe fruits eaten raw
<i>Leea macrophylla</i> Roxburgh [Leeaceae]; <i>Baishya-216</i>	<i>Kath-thengia</i> (A)	Shrub	August - March (Fl & Fr)	Freshly collected ripe fruits eaten raw
<i>Melastoma malabathricum</i> Linnaeus [Melastomataceae]; <i>Baishya-29</i>	<i>Enchi</i> (Ni), <i>Phutkala</i> (A)	Shrub	Throughout the year.	Ripe fruits eaten raw
<i>Maesa indica</i> (Roxburgh) A.DC. var. <i>indica</i> [Myrsinaceae]; <i>Baishya-373</i>	<i>Sesu/Awapat</i> (A)	Shrub	December - July(Fl & Fr)	Ripe fruits eaten raw
<i>Passiflora foetida</i> Linnaeus [Passifloraceae]; <i>Baishya-122</i>	<i>Mako mare</i> (Ni), <i>Jhumka-lota</i> (A)	Climber	April - November (Fl & Fr)	Ripe fruits are eaten raw.
<i>Physalis minima</i> Linnaeus [Solanaceae]; <i>Baishya-164</i>	<i>Pakmou</i> (A)	Herb	August - October (Fl & Fr)	Sweet scented ripe fruits are eaten raw.
<i>Sterculia villosa</i> Roxburgh [Sterculiaceae]; <i>Baishya - 306</i>	<i>Udal</i> (A)	Tree	March - June(Fl & Fr)	Roasted seeds are eaten.
<i>Streblus asper</i> Loureiro [Moraceae]; <i>Baishya - 150</i>	<i>Shoura</i> (A)	Tree	August - October (Fl & Fr)	Ripe fruits are very sweet and eaten raw.
<i>Syzygium cumini</i> (Linnaeus) Skeels [Myrtaceae]; <i>Baishya - 111</i>	<i>Tekok</i> (Ni), <i>Kola-Jamu</i> (A)	Tree	March-June (Fl & Fr)	Ripe fruits are eaten.
<i>Syzygium jambos</i> (Linnaeus) Alston [Myrtaceae]; <i>Baishya - 106</i>	<i>Komker</i> (Ni), <i>Golapi jamu</i> (A)	Tree	May - July(Fl & Fr)	Ripe fruits are eaten.
<i>Syzygium kurzii</i> (Duthie) Balakrishnan [Myrtaceae]; <i>Baishya - 43</i>	<i>Boggijamu</i> (A)	Tree	March - June(Fl &Fr)	Ripe fruits are eaten.
<i>Terminalia chebula</i> Retzius [Combretaceae]; <i>Baishya-409</i>	<i>Logye seen</i> (Ni), <i>Silikha</i> (A)	Tree	October – January (Fl & Fr)	Both raw and dried fruits are eaten.
<i>Terminalia bellirica</i> (Gaertner) Roxburgh [Combretaceae]; <i>Baishya-206</i>	<i>Logjekseen</i> (Ni) , <i>Bhomora</i> (A)	Tree	November - February (Fl & Fr)	Fruits are eaten.
<i>Zizyphus mauritiana</i> Lamark [Rhamnaceae]; <i>Baishya-138</i>	<i>Nebi relam</i> (Ni), <i>Bogori</i> (A)	Tree	September - January(Fl & Fr)	Ripe fruits are eaten raw or as prickled

A total of 34 species of fruit plants were documented from the Pakke Tiger Reserve belonging to 28 genera and 22 families. Further analysis revealed that of the documented wild edible plants Trees represent the major component with 68 % followed by Shrubs (20 %) and Climbers and herbaceous flora (6 %).

Being a part of the Eastern Himalayan region, Pakke Tiger Reserve is blessed with various natural resources especially with the plant genetic resources. The fertile soils and



**Fig. 1.** Habit wise classification of wild edible fruit-plants of Pakke Tiger Reserve (Arunachal Pradesh)

good amount of rainfall favours the occurrence of large number of fruit plants in the area. These fruit plants play a vital role in providing nutritional and economic security to the fringe villagers living in and around the reserve, though, commercial importance and market value of these wild fruits is unknown to them. Moreover, different animals (birds, insects, mammals etc.) present in the reserve also consume these fruits as their daily food requirement. But with the increasing encroachment in the reserve area by forest mafias, there prevails an alarming threat to its flora and fauna. So, immediately all necessary strong steps should be taken to prevent the encroachment and save the Pakke Tiger Reserve along with its prestigious biological diversity and the ecosystem as a whole.

Further research will also be required to examine whether these less known wild edible fruit plants are commercially fruitful or not or to use those as cash crop.

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