



Exploration Fruiting Patterns of Indigenous Fruits in Abia State, Nigeria.

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Abstract

The number of edible indigenous fruit is legion and they fruiting at different period of the year. Exploration fruiting pattern of indigenous fruits was carried out in Abia State of Nigeria. Data collection for this study was through personal interaction with people selling those fruits and seeds at the selected markets in the State. Twenty-six different fruits were documented. Their collection sources were recorded, their ripening period and socio cultural importance of those species were also documented. Based on the sources of fruit collection, 15.38% were sourced from natural forest, 7.69% were sourced from natural forest and farm land, 65.38% were sourced from farm land and residential areas. Out of 26 species recorded, 7 of them (26.9 %) fruiting in dry season (November to April) and the remaining 19 (73.1 %) fruiting in wet season (May to October). No one species had ripening period throughout the year. Some of the fruits are culturally used as food, spice, medicine, thickener, and some of them are used in certain ceremonies like child dedication, marriage, burial, chieftaincy and in cultural activity like yam festival. Information and knowledge about the ripening periods of indigenous fruits in Abia State would increase the potential for research, consumption, and marketing of specific fruits.

Keywords: Indigenous fruit, collection source, ripening period, usage.

Introduction

Fruit trees constitute importance biological resource in many agro-ecological systems all over the world. The assertion is evident by the fruit of these tree species long time economic and ecological impact in nature. Fruits are full of nature's rich essential nutrients, antioxidant and health benefits for ready use by humans (and other animals) without alteration in most cases, unlike vegetables and other edible agricultural/horticultural produce that may require necessary pre-treatments, like heating, sometimes before consumption (Rathore 2003; Lapena 2014). The tropics more than any other region of the world, is endowed with great diversity of fruit tree species that have provided humans with basic food and nourishment for ages since the domestication of beneficial wild plant (crop species). Tropical continents of the world possess rich variety of fruit trees with about 1000 species identified in Americas, 1200 species in Africa and 500 species in Asia (Paul and Duarte, 2011; Sthapit *et al.*, 2012). Although only relatively few fraction of these diversities are marketed worldwide, the diversities are nature's inestimable asset for the livelihoods of local people throughout the tropical regions.

According to the National Academy of Science (2008), fruit production in Africa at present has been dominated by such species introduced from tropical Americas and Asia. These introduced species include Banana, *Citrus* spp, Mango, Pawpaw, Pineapple among others, have also constituted bulk of international trade on tropical fresh fruit produce and processed fruit products. The continents are divers in their climate, soil, topography and vegetation which invariably influence the array and distribution of African floristic diversity. Tropical Africa sub-regions are home to many valuable fruit tree species whose potentials have not been fully realized. A good number of these fruit species have remained rather of local importance, and are yet to be domesticated. However, tangible economic produce are being harvested from their wild and or protected volunteer stands in home gardens, farmlands, and forest reserves (Okigbo, 1997; Meregini, 2005). A total of 30 plant species producing edible fruits, seeds and leaves in south eastern Nigeria rainforest are currently endangered (Onyebuchi 2020). Despite the potentials offered by indigenous fruit trees, many of them are fast disappearing and the current rate of genetic erosion through loss of species, varieties and habitat considered alarming.

Most of these losses had been traced to rapid rate of natural forest conversion to mono species plantations, commercial agriculture and other economic activities (Oni *et al.*, 2014). Research to increase the value of these species and to make them more widely available could broaden the agricultural resources base, and increase the livelihood option for rural communities. There is scarcity of existing literature focusing on utilization of fruit trees in several regions of the Africa despite their enormous potential. Indigenous fruit trees are yet to achieve the status of international recognition in commodity markets and research arena outside Africa (Awodoyin, 2015). Edible fruits in particular have propagated with the movements of humans and animals in a symbiotic relationship as a means for seed dispersal and nutrition, in fact, humans and many animals have become dependent on fruit as a source of food (Lewis 2002). Accordingly, fruits account for a substantial fraction on the world's agricultural output and some have acquired extensive cultural and symbolic meaning.

The economic assessment of indigenous food producing forest tree species in Abia and Imo State of Nigeria was carried out by Njoku (2010), where he was assessed few indigenous fruit tree species without considering fruit producing climbers. The tree species that were assessed by Njoku, 2010 include; *Chrysophyllum albidum*, *Dacryodes edulis*, *Irvingia wombuii* and *Pentaclethra macrophylla*. He was concluded that 100% of interviewees (farmers) were aware of the existence of those species, their usefulness and uses which they stated as fruits, seeds, bark, leaves, food, vegetables, drugs, fodder, and stem for timber and fuel wood. However, he was not looking into their fruiting patterns of those few species he was assessed. Information about the fruiting period of indigenous fruits is lacking in most of literatures. Fruit and seed that are produced by indigenous tree and climber species have economic importance, and to harness their potentials, studies have to be carried out on them. Therefore, the objective of this exploration study was to (1) document indigenous fruits that sold in the markets (2) know the source of their collection (3) document their fruiting period (ripening period). (4) examining their cultural usage. If this is done, it will add to the existing knowledge on indigenous fruit and it will contribute to the economic development of Abia State of Nigeria.

Material and Methods

Biophysical Feature of the Study Area.

This study was carried out in Abia State of Nigeria. Abia State is a state in south east Nigeria. It was created on August 27, 1991. It occupies a total area of 6320 km² and has a population of about 2,833,999 million people (Federal Republic of Nigeria, FRN, 2007; National Population Commission, NPC 2006). The major commercial city is Aba with its capital at Umuahia, has seventeen Local Government Areas. The state is bounded on the North and Northeast by the states of Anambra, Enugu, and Ebonyi. To the West of Abia is Imo State, to the East and Southeast are Cross River State and Akwa Ibom State, and to the South is River State. The Southern part of the state lies within the riverine part of Nigeria. Located in the Southeastern region of Nigeria, Abia State lies within approximately latitudes 5° 25' and 6° 14' North, and longitudes 7° 10' and 8° 30' East. It is low-lying with a heavy rainfall of about 2400 mm per annum especially intense between the months of April through October. The state lies mainly in the rain forest belt and has forest woods of economic value. The people are essentially peasant farmers. The women of the area farm and are also involved in cottage industries such as food processing and weaving. They also trade in agricultural products and fuel wood significantly.

Field observation and data collection

Data collection for this study was through personal interaction and communication (interview). Seventeen Local Government Area made up Abia State, from each local Government one farm market was selected and the total number of market used for this study were 17 (Figure 1, Table 1). Field trips were made to all the selected markets every month. Our focus was on the people selling indigenous fruits and seeds. The information were collected about the ripening period, socio-cultural importance of those fruits and seeds available with each interviewee and the source of collection of those fruits and seeds.

Result and Discussion

Table 2, Shows the kind of indigenous fruits recorded during the exploration study. The botanical name, common name, and Igbo name of those fruits were presented in the table. Species life form and the family each of the species belongs were mentioned in this table.

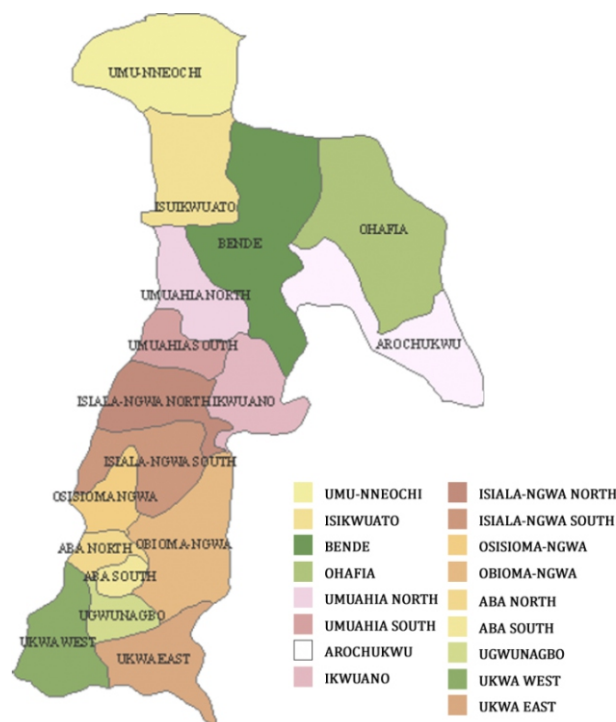


Fig 1: Map of Abia State showing the study area:

Table 1: Local Government Area in Abia State and the Surveyed Markets

Local Govt. Area	Markets
Bende	Afor-umuoche
Ikwuano	Ndioru
Umuahia North	Urbani
Umuahia South	Apumirin
Isiala Ngwa North	Ntigha
Isiala Ngwa South	Ahia Omoba
Obi Ngwa	Omuka
Ukwa West	Ahiankwo
Ohafia	Asaaga
Isoikwuato	Ahia Ovim
Aba north	Ariaria
Aba south	New Market
Arochukwu	Ahia Nkwo
Osioma-Ngwa	Ahia Ekeakpara
Ugwunagbo	Ahia Ugwunagbo
Umuneochi	Orie Ngodo
Ukwa east	Ahia Nwacbule

During this survey, a total of 26 different indigenous fruits were found selling in the study area. Based on their life form, 22 of them are produced by big trees, 2 are produced by shrubs and 2 are also produced by climbers and all belongs to 22 genera within 17 families (Table2). Of all the family recorded, Sterculiaceae was found to be the dominant family with a total of 4 species. Trees constitute 84.6%, shrubs constitute

7.69 % and climbers constitute 7.69 % of the species documented. The sections of the continent are diverse in their climate, soil, topography, and vegetation, which invariably influence the array and distribution of African floristic diversity (Awodoyin *et al.*, 2015). The sensitivity of rainfall and temperature differ from region to region (Tenaw and Habte, 2018). Tree species can only

thrive well in a particular ecological zone, perhaps if the climatic and environmental condition of that ecological habitat is favorable to them. The ability of the 26 species documented to produce fruit and seed that is available in all surveyed markets, it is an indication that ecological condition of Abia State favours their growth and which make them to produce fruit at a particular time of the year. Although much exotic fruit species always surface in the market abundantly than our indigenous fruits, but they have not been totally displaced from market by introduced species, such as Banana, *Citrus spp*, Mango, Pawpaw and Pineapple among others. Most of these introduced fruit species rather than the indigenous species

were grown and established in orchards and plantations for large scale production and distribution. Thus, the indigenous forest tree known to the local people continued their downward spiral of dwindling cultivation and knowledge without research investment and improvement (National Academy of Science, 2008). The dominant species come from the genus *Kola*, this is an indication that *Kola* species can thrive well in the State. All categories of plant life form produces economic fruit, this is also an indication that tree, shrub and climber are the component of ecosystem from which we can get our indigenous fruits

Table2: Showing the explored indigenous fruits in the study area

Botanical name	Common name	Igbo name	Species form	Family
1. <i>Xylopia aethiopica</i>	Negro pepper	Uda	Tree	Annonaceae
2. <i>Pentaclethra macrophylla</i>	African oil bean	Ugba	Tree	Fabaceae
3. <i>Spondias mombin</i>	Hog plum	Uvurunwankpi	Tree	Anacardiaceae
4. <i>Garcinia kola</i>	Bitter kola	Akilu	Tree	Guttiferae
5. <i>Dacryodes edulis</i>	African pear	Ube	Tree	Burseraceae
6. <i>Dennettia tripetala</i>	Pepper fruit	Mmimi	Shrub	Annonaceae
7. <i>Monodora myristica</i>	African nutmeg	Ehuru	Tree	Annonaceae
8. <i>Dialium guineense</i>	Black velvet tamarind	Ukwaa	Tree	Caesalpiniaceae
9. <i>Treculia africana</i>	African breadfruit	Ukwa	Tree	Moraceae
10. <i>Napoleiona vogelii</i>		Nkpui	Shrub	Lecythidaceae
11. <i>Brachystegia eurycoma</i>	Okwen	Achi	Tree	Caesalpinoideae
12. <i>Tetrapleura tetraptera</i>	Aidan tree	Inkonku	Tree	Mimosaceae
13. <i>Plukenetia corophora</i>	Bush kola	Ukpa	Climber	Euphorbiaceae
14. <i>Chrysophyllum albidum</i>	Star apple	Udara	Tree	Sapotaceae
15. <i>Bucholzia coriasea</i>		Uke	Tree	Capparidaceae
16. <i>Canarium shweinfurthii</i>	False walnut	Agbaka/Ubemgba	Tree	Burseraceae
17. <i>Cola nitida</i>	Kola	Oji gworo	Tree	Sterculiaceae
18. <i>Cola acuminata</i>	Kola		Tree	Sterculiaceae
19. <i>Cola pachycarpa</i>		Oji ochicha	Tree	Sterculiaceae
20. <i>Cola lepidota</i>		Achicha abo	Tree	Sterculiaceae
21. <i>Irvingia wombulu</i>	Bush mango/Dika nut	Ogbono	Tree	Irvingiaceae
22. <i>Irvingia gabonensis</i>	Bush mango	Lgiri-ohia	Tree	Irvingiaceae
23. <i>Myrianthus arboreus</i>		Ujuju	Tree	Moraceae
24. <i>Detarium micropcarpum</i>	Tallow tree	Ofo	Tree	Caesalpinoideae
25. <i>Coula edulis</i>	African walnut	Udi	Tree	Olaceae
26. <i>Mucuna sloanei</i>	Horse eye bean	Ukpotoru	Climber	Papilionoideae

Table 3, Shows the source where the collection of those indigenous fruit is made. The collection source include; natural forest, farm land and residential areas of the State.

Historically, the protection of indigenous forest trees and wild fruit species in many

countries of Africa had been carried out by local farmers in their community forest reserves, traditional home garden, protected volunteer stands of such important plant species in farm lands, market square, and village square (Awodoyin *et al.*, 2015). In this particular fruiting exploration study, 65.38% of the indigenous fruit

were sourced from farm land and residential areas (Table 3). This is an indication that Abians are highly involved in tree domestication. The species like *Dennettia tripetala*, *Irvingia gabonensis*, *Irvingia wombulu*, *Cola spp* have been well domesticated in the state. The species that source from natural forest are very few, 15.38% and these include *Mucuna sloanei*, *Bucholzia coriasea* *Napoleiona vogelii*, *Dialium guineense*. These particular species that are still wholly sourced from natural forest also need to be domesticated, otherwise if adequate measures are not taken may lead to the extinction of threatened species and endangered the vulnerable ones. Several authors have identified some of the

factors affecting biodiversity conservation in Nigeria, including land clearing for agriculture and uncontrolled logging, gathering of fuel wood, overgrazing and deforestation among others (Durugbo *et al.*, 2012), these indices are operating in Abia State and it could affect the availability of those fruits species that are sourced from natural forest, especially during their fruiting season. The species *Detarium macrocarpum*, was said to be domesticated in residential areas such as village square, home garden, market square because of its cultural usage. The effort should put in place to have a plantation of such species in farm land for proper protection and conservation.

Table 3: Showing the source of collection of indigenous fruits in the study area

Species	Collection sources
1. <i>Xylopia aethiopica</i>	Natural forest, farm land and residential areas
2. <i>Pentaclethra macrophlla</i>	Natural forest and residential areas
3. <i>Spondias mombin</i>	Farm land and residential areas
4. <i>Garcinia kola</i>	Farm land and residential areas
5. <i>Dacryodes edulis</i>	Farm land and residential areas
6. <i>Monodora myristica</i>	Farm land and residential areas
7. <i>Dialium guineense</i>	Natural forest
8. <i>Treculia africana</i>	Farm land and residential areas
9. <i>Napoleiona vogelii</i>	Natural forest
10. <i>Brachystegia eurycoma</i>	Farm land and residential areas
11. <i>Tetrapleura tetraptera</i>	Natural forest and residential areas
12. <i>Plukenetia corophora</i>	Farm land and residential areas
13. <i>Chrysophyllum albidum</i>	Farm land and residential areas
14. <i>Bucholzia coriasea</i>	Natural forest
15. <i>Canarium shweinfurthii</i>	Farm land and residential areas
16. <i>Cola acuminata</i>	Farm land and residential areas
17. <i>Cola parchycarpa</i>	Farm land and residential areas
18. <i>Cola nitida</i>	Farm land and residential areas
19. <i>Cola lepidota</i>	Farm land and residential areas
20. <i>Irvingia wombulu</i>	Farm land and residential areas
21. <i>Irvingia gabonensis</i>	Farm land and residential areas
22. <i>Dennettia tripetala</i>	Farm land and residential areas
23. <i>Myrianthus arboreus</i>	Farm land and residential areas
24. <i>Detarium macrocarpum</i>	Residential areas
25. <i>Coula edulis</i>	Natural forest and farm land
26. <i>Mucuna sloanei</i>	Natural forest

Table 4, Shows the ripening period of individual species from the month of January to December. As a result of genetic characteristics of individual tree species, the time of phenological events are not actually be the same. Although in some species

is used to be overlapped, even among the species of the same genus and family. In this study overlapping was observed. From the mouth of January to the month of December, every tree species has its own particular time to fruiting

(ripening period) when farmer and fruit collector harvest them for marketing and for other purposes. Naturally some economic trees engaged in alternate bearing and this does not make that species not to be available in the market during fruiting season, because a particular species that engages in alternate bearing in one locality, the same species in another locality would produce fruit. *Azelia africana* was reported to bear fruit alternately (Joseph and Joy, 2015). From the month of December to the month of April which is dry season, *Chrysophyllum albidum* abscise its mature fruits. Also, *Dialium guineense* produces its edible fruit between the month of February and April. These 2 species are not in the same family but their edible fruit is in dry season. The 4 species that were documented in the genus *Kola* and family Sterculiaceae (*Kola nitida*, *K. acuminata*, *K. pachcarpa* and *K. lepidota*) fruiting at different time. *Kola nitida* and *K. acuminata* produced their edible nut in the month of September and October while *K. pachcarpa* and *K. lepidota* produced their edible fruit in the month of June and July. This is an indication that the members of a particular plant family could not all produce their fruit at the same time in the year. But some members of a particular genus can produce flower and fruiting at the same period in a year. Physiology and genetic characteristic of a plant determine the period/season it would fruit. In this fruiting

exploration study, 26.9% of the explored species fruiting in dry season (November to April) and the remaining 73.07% fruiting in wet season (May to October) of the year. The different ripening times of indigenous fruits provide the potential for availability of a variety of fruit almost throughout the year. Of the 26 indigenous fruits observed, there is at least one ripening every month. Indigenous fruits which ripe in the dry season are appreciated for their good taste. These include *Dialium guineense*, *Chrysophyllum albidum* and *Bucholzia coriaseas*. Ripening periods ranged from one month (*Tetrapleura tetraptera*, *Myrianthus arboreus*, *Cola pachycarpa* and *Cola lepidota*) to five months (*Chrysophyllum albidum*). They can retain their fruit for few month if there is no much stress on them. No species had ripening period throughout the year like exotic species like guava, banana, pawpaw etc. This is in line with result of (Akinnifesi *et al.*, 2004), that fruit ripening overlapped for many species opening an avenue for having fresh fruits through the year. It is also in line with ethnobotanical survey of indigenous fruits of Zambia carry out by Mateke *et al.*, (1991) “that no one species had fruit ripening throughout the year, as is the case in exotic fruits like banana, pawpaw and avocado”. An important feature of these fruit trees serving as source of food is that many of them are available during the “hungry” periods when most of the staple foods are out of season.

Table 4: Ripening periods of indigenous fruits in Abia State

	Months											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<i>Xylopia aethiopica</i>							■	■	■			
<i>Pentaclethra macrophylla</i>					■	■	■	■	■			
<i>Spondias mombin</i>					■	■	■	■	■			
<i>Garcinia kola</i>					■	■	■	■	■			
<i>Dacryodes edulis</i>					■	■	■	■	■			
<i>Dennettia tripetala</i>				■	■	■	■	■	■			
<i>Monodora myristica</i>				■	■	■	■	■	■			
<i>Dialium guineense</i>		■	■	■	■	■	■	■	■			
<i>Treculia africana</i>		■	■	■	■	■	■	■	■			
<i>Napoleona vogelii</i>			■	■	■	■	■	■	■			
<i>Brachystegia eurycoma</i>			■	■	■	■	■	■	■			
<i>Tetrapleura tetraptera</i>										■		
<i>Plukenetia conophora</i>							■	■	■			
<i>Chrysophyllum albidum</i>	■	■	■	■	■	■	■	■	■			■
<i>Bucholzia coriaseas</i>	■	■	■	■	■	■	■	■	■			
<i>Canarium shweinfurthii</i>								■	■	■		
<i>Cola nitida</i>								■	■	■	■	
<i>Cola acuminata</i>								■	■	■	■	
<i>Cola pachycarpa</i>							■	■	■	■	■	
<i>Cola lepidota</i>							■	■	■	■	■	
<i>Irvingia wombulu</i>							■	■	■	■	■	
<i>Irvingia gabonensis</i>							■	■	■	■	■	
<i>Myrianthus arboreus</i>						■	■	■	■	■	■	
<i>Detarium microcarpum</i>						■	■	■	■	■	■	
<i>Coula edulis</i>						■	■	■	■	■	■	
<i>Mucuna sloanei</i>	■	■	■									■

Table 5, depicts the various usage of the indigenous fruits in the State. The usage include; food, medicine, spice, thickener, condiment, juice and snacks. Some of them are used in cultural ceremonies like burial, child naming and dedication, marriage and in cultural activity like yam festival. From time immemorial, man has used plant to fight and combat diseases, construction houses, treat and feed his animals, eat as food and perform other spiritual paraphernalia and with recent usage for aesthetic

purposes (Summer and Rose, 2010}. Every organ or part of plant was reported to be useful including fruit (Nodze *et al.*, 2013). The responses of the people contacted during our interview and communication with them reveals that the 26 species of indigenous fruit recorded have edibility potential and every part of fruit is useful depend on the usage. All fruit recorded has at least a single usage, with more species having multiple usage.(Table 5).

Table 5: Showing the cultural usage of the fruit species

	Species	Uses
1.	<i>Xylopia aethiopica</i>	Fruit and seed used as spice It is used for womb cleansing after delivery of baby It also used as treatment for cough The fruit also used for the treatment of body infection.
2	<i>Pentaclethra macrophlla</i>	The seed used as thickener and for oil production The seed used in traditional ceremonies as food Pods are used as fuel for cooking The ripe fruits are applied externally to heal wound Fruit pulp are used to treat gonorrhoea and convulsion.
3	<i>Spondias mombin</i>	The fruit is edible The fruit juice is drunk as a diuretic
4	<i>Garcinia kola</i>	The seed is edible The seed is highly presented in cultural ceremonies The seed is said to be aphrodisiac The seed is used for the treatment of cough and hoarseness of voice
5	<i>Dacryodes edulis</i>	The fruit is edible Oil from the fruit is used for local cream
6.	<i>Monodora myristica</i>	Seed used as spice and condiment It is also used for medicinal purposes
7	<i>Dialium guineense</i>	The fruit and seed are edible. It is also eaten by pregnant women to control nausea.
8	<i>Treculia africana</i>	The seed is used as food Seed serves as soup thickner It is also used for oil production
9.	<i>Napoleiona vogelii</i>	The fruit is edible
10.	<i>Brachystegia eurycoma</i>	Seed used as soup thickener
11	<i>Tetrapleura tetraptera</i>	The whole fruit used as spice It is used to control high blood pressure The fruit powder is used for treating skin infection
12.	<i>Plukenetia conophora</i>	The nut is edible In native medicinal practice, the nut and leaves have been found useful in the treatment of male infertility and dysentery. It makes eye to see properly
13	<i>Chrysophyllum albidum</i>	Fruit pulp is edible The seed is used for effluent treatment The fruit also serve as a source of income to rural people The seeds are used game
14	<i>Bucholzia coriasea</i>	It produces edible seed
15	<i>Canarium shweinfurthii</i>	The fruit is edible either in raw or boiled state
16	<i>Cola acuminata</i>	Nut is edible It is used to entertaining visitors It is also used in cultural ceremonies They use it as means ancestral communication
17	<i>Cola parchycarpa</i>	The mesocarp is edible The infusion from the pod is used to treat cough
18.	<i>Cola nitida</i>	The nut is edible They use it to entertaining visitors
19	<i>Cola lepidota</i>	Mesocarp is edible

20	<i>Irvingia wombulu</i>	Mesocarp is eaten raw The seed is used for making soup It is also used as thickening agent. The seed can singly used as soup The soup from the seed enhances sperm production
21.	<i>Irvingia gabonensis</i>	Mesocarp eaten raw It is used as soup emulsifying agent
22.	<i>Dennettia tripetala</i>	Fruit and seed are edible because of spicy nature The fruit is used for treating mouth disease The fruit serves as remedy for cough Also serves as remedy for nausea in pregnant women
23.	<i>Myrianthus arboreus</i>	Fruit pulp is edible The seed is also edible after cooking
24.	<i>Detarium macrocarpum</i>	The seed flour is traditionally emulsifying, flavouring and thickening agent. Its seed kernels are added to melon soup, or cooked and eaten as vegetables.
25.	<i>Coula edulis</i>	The nut is eaten raw or cooked It can also be fermented and used as condiment The nut also produces cooking oil.
26.	<i>Mucuna sloanei</i>	Young fruits are eaten as vegetable The ripe seed is pounded and cooked in soup The seed is used as diuretic The seed are also used in decoration and in game.

Cultural utilization pattern indicates that people in Abia state use fruits for food, medicine, juice, oil, spice, thickener, and condiment production for their livelihood and cultural practices. People in the State used fruit for production of their traditional food. Traditional foods are increasingly considered healthy and wholesome, and as a result, public interest in their nutritional and health impact has increased, as well as their demand (IFCSP, 2010). Tropical forest contain not less than 60% of all higher plants species known on earth and they provide all that is needed for human survival including remedies against diseases. Some of the fruits documented in this study are said to be useful in treating disease and ailment. For example, the fruit of *Garcinia kola*, *Dennettia tripetala*, *Xylopia aethiopica*, are used by the people to treat cough. Also the fruit of *X. aethiopica*, *Tetraplura tetraptera* are used as treatment for skin infection. The consumption of *Plukenetia conophora* makes eye to see clearly and it also useful in the treatment of male infertility and dysentery. The soup made with *X. aethiopica* makes the womb to be stabilized after delivery.. It is estimated that about 60 % of the world population and 80 % of the population of developing countries rely on traditional medicine for their primary health care need (Shrestha and

Dhillon, 2003). Some fruits are consumed due to their spicy nature example of such include *D. tripetala*, *X. aethiopica*, *Monodora myristica*, *T. tetraptera*. Also some of them like *Irvingia spp*, *Dentarium macrocarpum*, *Brachystegia eurycoma*, are used as thickener and culturally, they are used for the production of soup which traditionally accompany a carbohydrate staple foods.

The seed of *G. kola* and some species of *kola*, like *K. nitida*, *k. acuminata* are used for entertaining visitors . In the cultural ceremonies such as naming, burial, marriage, and other cultural activity like yam festival, *G. kola*, *K. nitida*, *K. acuminata* are highly used by the people of the state. No part of fruit is useless. The usage limit is depend on the knowledge of people using that particular species. For instance the whole fruit of *P. macrophyllum* is culturally important; the seed is used food production and condiment, the powder from the pod is used for wound treatment, the dry woody pod is used as fuel for cooking, the ash from burning of the pod is also used in production of solvent which is used by women to wash their hair against parasites. The nut of *Coula edulis* is edible and it is also used for oil production. All the 26 indigenous fruit species documented are important source of income for rural people in Abia State because of their edibility potential.

Conclusion

The fact that the ripening periods of indigenous fruits are spread throughout the year provides the potential for improving the nutrition of people of Abia State. The priorities in research for domestication and utilization should be aimed at fruits that mature during periods of lowest food reserve for smallholder farmers. Information and knowledge about the ripening times of indigenous fruits in Abia State would increase the potential for research, consumption, and marketing of specific fruits.

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