



Identification and uses of spices in Eku market of Ethiope East Local Government area, Delta State, Nigeria

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Abstract

The research was conducted to identify spices and their uses; sourcing of spices in Eku market. Thirty spices sellers were purposively selected based on the number and quantity of spices sold. Questionnaires were administered to the selected spices sellers to gather information on socio-economic characteristics of spices sellers, uses of spices and sourcing of spices. Descriptive statistics was used to analyse the data. The result signify that the spices sellers are women, with age bracket of 45-54 years (46.7%) and are married (70%) with primary education (60%). Most of them are native of Eku community (83.3%) and have lived in the community for 41-50 years and above (36.7%). The number per house of the spices sellers are 6-10. Their main occupation is trading with an average income of ₦35,000 (US\$ 34) derived from the selling of spices per market day. Eleven spices were identified with their local and botanical names. The spices are used mainly as condiments in cooking different delicacies. Forty percent of the spices are used as medicine. Twenty percent are used traditionally in sacrifices and as incense by traditional worshippers. The spices are sourced from different markets within Delta State and from the Western side of the country. The spices and their usage are well known and are important to the peoples' well being and health.

Keywords: Spices, condiment, taste, medicine, health, healing

Introduction

Spices have been used as condiments in cooking and as medicine over hundred of decades by the Urhobo people and other tribes in Delta State. Spices improve the general health of people in both rural and urban areas. Spices are condiments derived from products or mixtures of vegetable, used as food seasoning, to colour food or in imparting aroma in foods" (Olife and Onwualu, 2013). Spices improve food taste, colour, aroma and preserve the food and are derived from numerous plant parts such as leaves, bark, fruits, other parts or the entire plant tops. Spices have valuable effects on particular functions in human body outside basic nutritional needs (Lobo *et al.*, 2010; Adeyemi *et al.*, 2015).

They are in a range of flavour, colour, and aroma supplying different nutrients in food (Mann, 2011). They enhance food flavour without altering the food quality. They give good taste to food but are not tasty themselves, and a lot of them are utilised in producing medicine and have healing properties (Newman and Cragg, 2012). Their components help in repelling snails, insects; and in killing micro organisms mainly parasite fungi (Adeyemi, 2011).

Spices are well-liked among Nigerians, and a large quantity of the Nigerian spices grow in the wild (Olife and Onwualu, 2013). In Nigeria, spices are usually seen in four agro ecological zones; the forest (which include the rainforest and mangrove) and the three savannas (including the dried, guinea and sudan). Large quantities of them are in the Southern rainforest zone. Olife and Onwualun (2013) reported that there are

several challenges to sustainable use of Nigeria's indigenous spices. These include deficiency in cultivation and domestication, influx of spices that are exotic to Nigeria, destructive harvesting methods, deforestation and bush burning, lack of suitable technology for processing and poor funding of research and development. The spices in the wild make up about forty eight percent of all the spices found locally but because of human activities, they encounter the danger of extinction. Whenever the forest is cleared for other purposes especially for farming, these spices are cleared alongside other trees and shrubs. Even with the increase in consumption of spices in Nigeria, these shrubs and trees are still not given enough attention and production is very low. Very few people cultivate these spices in Nigeria. The objective of the study was to identify spices, their uses and from where they are sourced with the aim to encourage growing of the spices in mass to sustainably meet the need of the people which is in line with the sustainable development goal 15 that aim to protect and promote sustainable use of natural resources.

Methodology

Study area

Ekuru market is in Ekuru town located in Ethiope East local government area of Delta State, Nigeria. Ekuru has a coordinates of 5° 45' 38" North and 5° 59' 26" East (Fig. 1). Ekuru has nucleated settlement. The market takes place at every 4 days interval. Ekuru has a yearly mean temperature of 29.52°C and 248.94 mm (9.8 inches) of precipitation.



Fig. 1. Map of Eku market

Data collection and analysis

Purposive sampling design was used in the study. Thirty spice sellers were selected purposively based on the number and quantity of different spices sold. A detailed questionnaire was administered to the selected spice sellers to collect information on the socio-economic characteristics of spices sellers, types of spices, uses of spices and places from where spices were sourced.

Data were analysed with descriptive statistics which include percentage, frequency, mean, standard deviation and standard error of mean.

Results and discussion

Socio-economic characteristics of spices sellers

The results in Table 1 indicates the socio-economic characteristics that are most frequent. The spices sellers are women, who

are within the age of 45-54 (46.7%) and are married (70%) with primary education (60%). Many of the spices sellers are native of Eku community (83.3%) and have lived in the community for 41-50 and above (36.7%). The number per house of those that sell spices are 6-10. Their main occupation is trading with an average income of ₦35,000 (US\$ 34) derived from the selling of spices per market day.

The involvement of only women in the selling of spices in Eku market is supported by reports of Ohwo *et al.* (2021), that females were the main marketers of Non-wood Forest Products (NWFPs). Adewale and Oyesola (2013), worked on utilisation of spices and found out that majority (72.5%) of those that use spices were males while a few (27.5%) were female. The spices marketing in Eku market by only women could be traced to the belief that men are not expected to market certain goods which

include spices. The spices marketing in Eku market by women could also be traced to the fact that women are also expected to cook for the family which make them to be well-informed in the various types of spices, their uses and the amount used for either cooking or medicine. Though the women are in their late adulthood (50 years) but still engaged in selling spices owing to their knowledge of the spices benefits; the type and amount of spices for a particular soup. The spices sellers are married with primary education. They are mostly native of Eku community (83.3%) and have spent most of

their lives in the community. The family size of spices sellers is 6-10 persons per house, which could be could be reason for engaging in trading of spices to support their family. Ogeh (2023) work on fuel wood consumption also reported 6-10 persons per house. Their main occupation is trading which could be due to lack of higher education of spice sellers. The average income from selling of various spices per market day is ₦35,000 (US\$44.17). Women involved in the sales of NWFPs generate US\$ 56.66 as income from *Irvingia wombolu* (Ohwo *et al.*, 2021).

Table 1. Socio-economic characteristics

Socio-Economic Characteristics	Frequency	Percentage (%)	Mean	Standard deviation	Standard error of mean
Gender					
Female	30	100	2	0	0
Age					
45-54	14	46.7	2.4	1.1	0.2
Marital status					
Married	21	70	2.3	0.5	0.9
Educational status					
Primary	18	60	2.4	0.4	0.1
Native of Eku community					
Yes	25	83.3	1.2	1.7	0.3
Years of residence					
41-50 and above	11	36.7	4.5	1.7	0.3
Household size					
6-10	17	56.7	1.7	0.6	0.1
Main occupation					
Trading	21	70	1.9	0.6	0.1
Income					
30,001-40,000 (US\$ 29-US\$ 39)	10	33.3	4.3	1.2	0.2

Identified spices

Eleven spices that are mainly used as condiments in cooking different delicacies were identified (Table 2), with their local names in Urhobo; common and botanical names. The pictures of identified spices are also represented (Fig. 2-10).

Monodora myristica is native to the evergreen forests of West Africa, and can be found in countries such as Liberia, Nigeria, Cameroon, Angola, Uganda and West Kenya. The seeds are numerous oblong, pale brown that are usually 1.5 centimetres long and are surrounded by a creamy-white pulp (Fig. 2). *Xylopia aethiopica* is a native to the lowland rainforest and moist fringe forests in the savanna zones of Africa. The fruits are small dark brown, cylindrical twisted bean-like pod (Fig. 3). They are 1.5 - 6 centimetres long and 4-7 millimetres thick. *Tetrapleura tetraptera* is deciduous flowering plant that is native to the rain forests of West and Central Africa. It grows to a height of 20 – 25 metres and 1.2 – 3 metres wide (Fig. 4). The fruits are dark purple-brown shiny glabrous and slightly curved with four longitudinal wing-like ridges. *Parinari excelsa* has a wide distribution in tropical region and America. It grows to 50 metres in height (Fig. 5). *Aframomum sceptrum* is a rhizomatous herb. It is found in south Nigeria (Fig. 6). Most of the plant parts contain oil. They are aromatic and pungent. *Cassia Fistula* is a small medium-sized tree that typically grows to 30 – 40 tall in height (Fig. 7). *Heinsia crinite* is a shrub in tropical Africa. It

grows up to 4.5 metres (Fig. 8). The fruits are ellipsoid with crown of persistent, leaf-like calyx lobes and orange when ripe. *Glycyrrhiza glabra* are herbaceous plant grow to 2 metres tall (Fig. 9). The fruits are oblong legume that contains several seeds. *Chrysobalanus icaco* is an evergreen shrub or tree, with a height of 30 feet and 20 feet wide and the fruits look like plum in shape (Fig. 10). *Tridax procumbent* is a perennial herb with creeping stems that grows to 30 inches long and lie along ground, curving upwards at the tip. The fruits when dry are oblong achenes that are dark brown to black in colour and covered with silky hairs. The flowers are daisy-like flowers with white ray florets and yellow disk florets. It grows to 40 centimetres or more. *Ocimum gratissimum* is an aromatic plant with erect, round-quadrangular stem that is woody at the base. It can grow to a height of 1 - 3 metres.

The spices identified in Eku market is in line with the work of Adelaja et al. (2008), which assert that Nigeria has several indigenous spices resources namely: *Aframomum longiscarpum*, *Parkia biglobosa* L, *Xylopia aethiopica*, among others. Akinpelu et al. (2011), worked on the uses of *Ocimum gratissimum* and *Parkia biglobosa* in antenatal and post partum period among women in Ibadan. Adeyemi et al. (2015) identified 22 tree species utilized for food and medicinal purposes in Imo State. Ogeh and Jimoh (2023), also identified *Tetrapleura tetraptera* as a spice used in communities around Iyiocha Stream Forest Reserve.

Table 2. Local and botanical names of spices

S/no	Common name	Local name in Urhobo	Botanical name
1	Calabash nutmeg/African nutmeg	Erhe	<i>Monodora myristica</i> (Gaertn.)
2	African/guinea/Ethiopian pepper	Urheri	<i>Xylopiya aethiopica</i> (Dunal) A.Rich.
3	Prekese/ Aidan fruit	Evevwe	<i>Tetrapleura tetraptera</i> (Schumach & Thonn)
4	Rough skinned/grey guinea plum	Egbafino	<i>Parinari excelsa</i> (Sabine)
5		Atiaku	<i>Aframomum sceptrum</i> (Oliv. & D. Hanb.) K. Schum.
6		Oroghoje	<i>Cassia fistula</i> (Linnaeus)
7		Obenetietie	<i>Heinsia crinite</i> (PROTA)
8	Oburunbebe stick	Urhie Ogwo	<i>Glycyrrhiza glabra</i> L. (Liquorice)
9	Coco plum (Caribbean)		<i>Chrysobalanus icaco</i> (A. Chev.) F.White
10	Black pepper	Ishasha	<i>Tridax procumbent</i> L (Asteraceae)
11	Clove basil or scent leaf	Egbafino	<i>Ocimum gratissimum</i> L. (Lamiaceae)

Note: Urhobo names of spices were sourced from the spices sellers in Eku Market. Urhobo is one of the languages in Delta Central District of Delta State, Nigeria.

**Fig. 2.** *Monodora myristica***Fig. 3.** *Xylopiya aethiopica***Fig. 4.** *Tetrapleura tetraptera***Fig. 5.** *Parinari excelsa*



Fig. 6. *Aframomum sceptrum*



Fig. 7. *Cassia fistula*



Fig. 8. *Heinsia crinite*



Fig. 9. *Glycyrrhiza glabra* L.



Fig. 10. *Chrysobalanus icaco*

Uses of spices

Uses of spices sold in Eku market is given in Table 3. Serial numbers 1- 4 and 9 -11 are utilised in cooking pepper soup. While numbers 3, 5, 6, 8 and 11 are utilised in cooking banga (palm fruit) soup. Forty percent of spices mentioned above are utilised as medicine in curing fever, stomach pain, measles, cough, catarrh, uterine fibroid and infections. Twenty percent are used traditionally in sacrifices and as incense by traditional worshippers.

The eleven spices identified are used mainly as condiments in cooking different

delicacies such as banga (palm fruit) soup and pepper soup. They are medically used in treating fever, stomach pain, measles, cough, catarrh, and infections which support the findings of Mann (2011), that spices significance is highlighted owing to the fact that forty percent of drugs contain spices. They have positive outcome in treating several diseases, especially the ones that are chronic like cardiovascular diseases, cancer and diabetes. Spices are utilised in reducing diseases (Iyer *et al.*, 2009; Adeyemi *et al.*, 2015). They supply natural antioxidants.

Table 3. Uses of the identified spices

S/no	Spice	Parts used	Consumption uses	Medicinal uses	Traditional uses
1	<i>Monodora myristica</i>	Kernel	Condiment in cooking soup	Treating of Fever, stomach pain	Used in rituals
2	<i>Xylopia aethiopica</i>	Skin and seed	Condiment in cooking soup	Treating cough, malaria, uterine fibroid	
3	<i>Tetrapleura tetraptera</i>	Fruit pod	Condiment in cooking soup	Treating infections, fever, fibroid, convulsion contraceptive and post-partum care in new mothers	Used as incense
4	<i>Parinari excels</i>	Kernel	Condiment in cooking soup		
5	<i>Aframomum sceptrum</i>	Seed	Condiment in cooking soup		
6	<i>Cassia Fistula</i>	Seed	Condiment in cooking soup		
7	<i>Heinsia crinite</i>	Leaf	Condiment in cooking soup	Treating measles in children	
8	<i>Glycyrrhiza glabra</i>	Stem	Condiment in cooking soup		
9	<i>Chrysobalanus icaco</i>	Kernel	Condiment in cooking soup		
10	<i>Tridax procumbent</i>	Seed	Condiment in cooking soup		
11	<i>Ocimum gratissimum</i>	Leaf	Condiment in cooking soup	Treating cough, catarrh, infections	

Sourcing of spices

The spices are sourced from different markets within Delta such as Effurun, Oyouko, Abavo and the Western side of country mostly Ondo State where spices are sold in bulk (Table 4).

The buying of spices from within Delta such as Effurun, Oyouko, Abavo and the Western

side of the country mostly Ondo State, as forests in those areas have abundance of the spices with some are grown around homes. The sourcing of spices from other states indicate that these spices are scarce, hence are threatened in Delta State. Ohwo *et al.* (2018) reported that saw millers sourced logs from other states with rich forest cover in Nigeria to remain in business.

Table 4. Sourcing of spices

Sourcing of spices	Frequency	Percentage
Within Eku market	2	6.7
Outside Eku market	28	93.3
Total	30	100

Conclusion

The study identified eleven spices in Eku market. These spices are very important and are used as condiments in cooking, as medicine and also used traditionally. Despite these spices importance to human well-being and health, they are still not produced in sufficient quantities and hence not readily available. Increasing awareness on the importance of these spices on the quality of life of the people, could aid in conservation and increased cultivation of these spices. Establishment of plantations of these spices in Eku and other places within Delta State for easy access and availability on a continual basis should be encouraged, especially for *Monodora myristica*, *Xylopia aethiopica*, *Tetrapleura tetraptera* that grow very tall. Spices conservation should also be encouraged in places where they are found. Studies on reducing gestation period of these spices will be useful.

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