ASPECT OF ETHNOBOTANY OF TRADITIONAL LEAFY VEGETABLES UTILIZED AS HUMAN FOOD IN RURAL TROPICAL COMMUNITIES

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ABSTRACT

The ethnobotanical survey of traditional leafy vegetables of Izzi clan in Ebonyi State of Nigeria was investigated. Twenty-five traditional leafy vegetables belonging to eighteen plant families were identified and documented with their habits/forms. Majority of these vegetables were from the families of Pipilionaceae, Cucurbitaceae, Tiliaceae and Moraceae. Sixty percent (60 %) of the identified vegetable species were cultivated, while 40 % were collected from the wild or semi-wild. Fifty-two percent (52 %) of the leafy vegetables were tree species, while 4 % were shrubs and 44% were herbs (and or herbaceous climbers). Thirty-two percent (32 %) of these species were available during the dry season while 68 % were rainy season species. The need for conservation and sustainability of these bioresources are stressed, in order to safeguard them for future generations and avoid their genetic erosion.

Keywords: Ethnobotany, Traditional leafy vegetables, Human food, Izzi, Ebonyi

INTRODUCTION

Vegetables are important protective foods, which are highly beneficial for the maintenance of good health and prevention of diseases. They contain valuable food nutrients, which can be successfully utilized to build up and repair the body. Many vegetable crops particularly the leafy vegetables are mainly consumed for their nutritional values for health and development of the human body. They are rich sources of carotene, ascorbic acid, riboflavin, folic acid and minerals like calcium, iron and phosphorous (Sheela *et al.,* 2004). In nature there are many underutilized traditional leafy vegetables of promising nutritive values, which can nourish the ever-increasing human population. Many of them are resilient, adaptive and tolerate adverse climates. Although, they can be raised comparatively at lower management cost even on poor marginal lands, they have remained underutilized due to lack of awareness and popularization of technologies for their proper utilization (Raghuvanshi and Singh, 2001).

In time past, the average African rural dweller depended on subsistence farming in which he cultivated vegetable crops at least for his immediate family consumption. The era of civilization, had great influence on the choice of vegetables used as food and their cultivation. Increasing pressure caused by human activities is equally disrupting even the existence, balance and natural regeneration of these vegetables. The gradual loss of genetic diversity deprives man of the opportunity to meet his future needs and even present challenges of vegetable production for the enhancement of the individuals' health (Ayodele, 1996). Currently there is a global attention on the conservation and sustainability of the rich biodiversity of the tropical rainforest. This is as a result of the vast resources derivable from the forest and the threat to these bioresources due to

anthropogenic activities and their unsustainable uses (Dania-Ogbe *et al*., 2001). Okafor (1975) reported on the place of the wild (uncultivated) fruits and vegetables in the Nigeria diet while Dania-Ogbe *et al*. (2001) studied the traditional food, useful plants and leafy vegetables of Southwestern Nigeria. Izzi is found in Ebonyi State located in the plains of Cross River within the derived mosaic vegetation of the southeastern zone of Nigeria (Ofomata, 1975). It is endowed with enormous bioresources stretching across the different Local Government Areas. Inventory of traditional leafy vegetables of other parts of the country have been done, but none has been documented from Ebonyi State. The aim of this research was to identify and document the traditional leafy vegetables of Izzi clan, Ebonyi State, and to show the need for re-orientation, on the sustainable utilization of these bioresources, particularly in this era of high cost of living and Primary Health Care Delivery.

MATERIALS AND METHODS

Sampling: Market surveys were carried out for the traditional leafy vegetables in five markets of five main villages in Izzi clan (Figure 1).

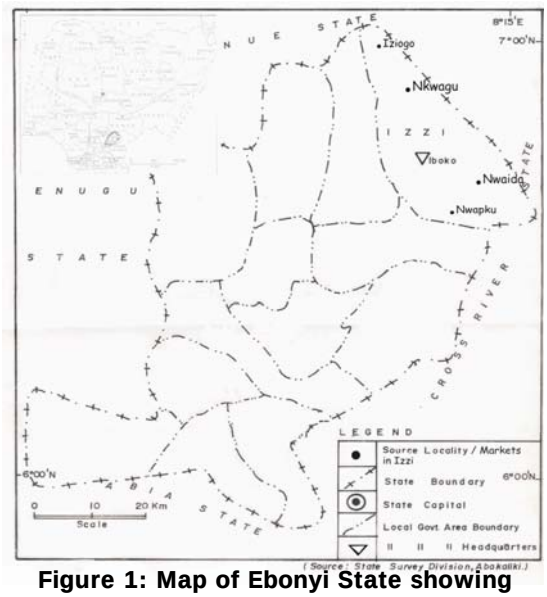

Figure 1: Map of Ebonyi State showing Izzi clan and source localities of traditional leafy vegetables

These markets were Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu all in Ebonyi State of Nigeria. The traditional leafy vegetables on sale in these market were recorded. Informal interviews were conducted with some of the marketers as to the variety of vegetables, where, when and how they are obtained for sale in the markets. Farms and forests were visited for personal observation of habits and forms of the vegetable. Identification of these plants was done in the fields and markets (Keay, 1989; Inyang, 2003), while those that could not be readily identified were carried to the herbarium curator in Department of Botany, University of Nigeria, Nsukka for identification. Vouched specimens were deposited in the herbarium in the Department of Applied Biology, Ebonyi State University, Abakaliki Nigeria.

RESULTS AND DISCUSSION

Twenty-five traditional leafy vegetables were identified and documented from the five villages of Izzi clan studied. The scientific names, families, local and English names of the varieties, and their habits and forms were recorded (Table 1). Majority of the vegetables were from the families of Pipilionaceae, Cucurbitaceae, Tiliaceae and Moraceae. The place of collection of the vegetables and time of abundance are shown in Table 2. Sixty percent (60 %) of the identified vegetable species are cultivated, while 40 % were collected from the wild or semi-wild. Forty-eight percent (48 %) of the leafy vegetables are tree species, while 52 % are shrubs. Thirty-two percent (32 %) of these species are available during the dry season while 68 % are rainy season species (Table 3).

The results of our investigation revealed significant number of leafy vegetables in the flora of Nigeria utilized by Izzi indigenes in their dietary menu. The twenty-five traditional leafy vegetables documented (Table 1) exceeded the 13 species recorded by Dania-Ogbe *et al.* (2001) from Edo and Delta States of Nigeria, but is below the number reported by Sheeia *et al.* (2004). The menu of an average Izzi rural dweller is *fu-fu* (a carbohydrate meal) taken along with vegetable soap. The *fu-fu* provides the carbohydrate while other food nutrient are derived from the vegetable soap.

Table 1: List of traditional leafy vegetables recorded from Izzi clan

S/N	Scientific Name	Family	Local	English Name	Source
1	***Pterocarpus soyeaxii* Taub.**	Pipilionaceae	*Oko*	African padauk	C
2	***Pterocarpus santalinoides***	Pipilionaceae	*Uturupka*	-	W/C
3	***Zanthoxylum zanthoxyloids***	Rutaceae	*Nkaa*	_	W
4	***Corchorus olitorius* L.**	Tiliaceae	*Arira*	Bush Okra	C
5	***Teliferia occidentalis* Hook**	Cucurbitaceae	*Ugu*	Fluted pumpkin	C
6	***Newbualdia leavis* (P. Beauw) Seemann Bureau**	Bignoniaceae	*Omirima*	Boundary tree	C
7	***Ficus ottoniifolia* Thunb**	Moraceae	*Ekwuogbu*	Hedge fig	C
8	***Ficus capensis* Thunb.**	Moraceae	*Ekwuakpuru*	Fig	W
9	***Solanum nigrum***	Solanaceae	*Igbagba*	Garden egg	C
10	***Occimum gratissimum* L.**	Tiliaceae	*Ahunji*	Tea bush	C
11	***Colocasia exculentus* L.**	Araceae	*Opoto*	Cocoa yam	C
12	***Lecaniodiscus cupaniodes***	Sapindaceae	*Ukpuocha*		W
13	***Gongronema latifolia* Benth**	Asclepiadaceae	*Utamashi*		W/C
14	***Bombax bounopozense* L.**	Bombacaceae	*Apkuto*	White silk	W
15	***Venonia amygdalina* Del.**	Asteraceae	*Olubu*	Bitter leaf	C
16	***Moringa olerifera* Lam**	Moringaceae	*Ekwuesisa*	Drum stick plant	W
17	***Cucurbita pepo* L.**	Cucurbitaceae	*Ugboma*	Pumpkin	C
18	***Nuaclea diderrichii* (DeWild and Th. Due.) Merrill**	Rubiaceae	*Uvuru*	Opepe	W
19	***Piper guinensis* Schum and Thonn**	Piperaceae	*Uzuza*	Guinea black pepper	C
20	***Ipomoea aquatica* Forsk**	Convolvulaceae	*Ekwuuda*	Swamp morning glory	W
21	***Iponzoea batatas* (L.) Lam.**	Convolvulaceae	*Ekwoku*	Potato	C
22	***Capiscnam frutescens* L.**	Solanaceae	*Ekwuigbapu*	African pepper	C
23	***Talinum triangulare* Willd**	Portulacaceae	*Ngbolodi*	Water leaf	C
24	***Amaranthus spinosus* L.**	Amaranthaceae	*Inene*	Green	C
25	***Vitex doniana* Sweet**	Verbenaceae	*Uchakuru*	Black plum	W

Legend: *C=Cultivated, W= Wild, CW = Cultivated/Wild*

These traditional leafy vegetables in their diet help them to avert malnutrition as they provide valuable sources of minerals, vitamins, proteins and roughages. Odhav *et al.* (2007) had earlier reported that these traditional leafy vegetables endowed with essential nutrients for human consumption improves the health care system of the poor populace.

Although the prices of these commodities range from ten to twenty (₦10.00 - ₦20.00) naira per a bundle, it serves as a source of income for women and children who go in search of them particularly during the dry seasons. It still goes a long way to supplement for their little income.

Consumers preference for some vegetables abound and such species like *Telferia occidentalis, Pterocarpus santalinoide, Zanthoxylum zanthoxyloids, Lecaniodiscus cupaniodes* and *Gongronema latifolia* are in higher demand and as such expensive.

Table 2: Time of abundance of traditional leafy vegetables of Izzi clan, Ebonyi State, Nigeria

S/No	Name Local Name	Forms	Place of collection	Rainy Season	Dry Season
1	***Pterocarpus soyeaxii* Taub.**	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	-	+
2	***Pterocarpus santalinoide***	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	+
3	***Zanthoxylum zanthoxyloids***	T	Igbagu, Isieke	-	+
4	***Corchorus olitorius* L.**	H	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	-	+
5	***Teliferia occidentalis* Hook**	CH	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	+
6	***Newbualdia leavis* (P. Beauw)**	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	-	+
7	***Ficus ottoniifolia***	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	-	+
8	***Ficus capensis* Thunb.**	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	-	+
9	***Solanum nigrum***	S	Nwaida, Amagu, Oferepke	+	+
10	***Occimum gratissimum L.***	H	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	+
11	***Colocasia exculentus* L.**	H	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	-
12	***Lecaniodiscus cupaniodes***	T	Isieke	-	+
13	***Gongronema latifolia* Benth**	CH	Isieke, Oferepke	+	
14	***Bombax bounopozense* L. Gaertn.**	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	-	+
15	***Venonia amygdalina* Del.**	S	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	+
16	***Moringa olerifera* Lam**	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	+
17	***Cucurbita pepo* L.**	CH	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	-
18	***Nuaclea diderrichii***	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	-
19	***Piper guinensis* Schum**	CH	Isieke	+	-
20	***Ipomoea aguatica* Forsk**	H	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	+
21	***Ipomoea batatas* (L.) Lam**	H	Igbagu, Isieke, Amagu	+	-
22	***Capiscum frutescens* L.**	H	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	+
23	***Talinum triangulare* Willd**	CH	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	-
24	***Amarantaus spinosus* L.**	H	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	+	-
25	***Vitex doniana* Sweet**	T	Nwakpu, Iboko, Iziogo, Nwaida and Nkwagu	-	+

Legend: *T = Tree; S = Shrubs; H = Herb; CH = Climbing Herb*

Table 3: Summary of data on availability, source and habit of the leafy vegetables studied

Parameters studied	Percentage (%) of the total
Time of the year	
Rainy season	68
Dry season	32
Source	
Wild	32
Cultivated	60
Wild/ cultivated	8
Habit	
Tree	52
Shrubs	4
Herbs	44

These vegetables need skill training in home gardening for income generation through large cultivation for the rural dwellers.

The thirty-two percent (32 %) of these leafy vegetables available during the dry season fills the scarcity gap, especially in the market when the rainy season and exotic species become scarce and expensive. These groups are mainly collected from the wild or semi-wild, species such as *Nauclea dedirrichii, Gongronema latifolia, Lecaniodiscus cupaniodes* and *Ipomoea aquatica.* These species are neither protected from fire nor properly cared for. As a result of their unsustainable practices, some of them are endangered, particularly *Lecaniodiscus cupaniodes* and *Piper guinensis. Ipomoea aquatica* that grows only in aquatic environment is the worst struck, because most of the swampy paddy environments are now used for various developmental projects. This calls for urgent attention on their conservation and sustainability. Ayodele (1996) suggested a working co-operation among taxonomists, conservationists and geneticists to obtain maximum results for biodiversity conservation. An indispensable pre-requisite for national conservation is to know which species need protection and where they occur. Having documented these twenty-five Traditional leafy vegetables from Izzi and those facing genetic erosion, it becomes pertinent for them to be biotechnologically conserved. Conservation biologist in Nigeria must, therefore, begin to address conservation at the genetic level (Heywood, 1992; Ayodele, 1996).

The 60% cultivated species are intercropped with yam, cassava and other stable crops. The exploitative use of traditional leafy vegetable for food and medicine coupled with diverse agronomic practices and climatic changes call for their sustainable management and genetic conservation.

Further research is still needed on the nutritional values and biotechnological techniques for improving yields. In addition, more detailed works are on going on the identification and documentation of traditional leafy vegetables from other parts of the State.

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