

Research Article

Ethnobotanical Survey of Plants Used as Remedy for Fertility Conditions in Ebonyi State of Nigeria.

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Abstract: In the survey, an ethnobotanical inventory was conducted to document the different plant families, species and parts of plants used as remedies for fertility problems. The result showed that a total of 62 plant species from 41 families mostly of the Euphorbiaceae, Fabaceae, Apocynaceae and Annonaceae were used in the treatment of fertility conditions such as infertility, low sperm count, threatened miscarriage and menstrual disorder. The most plant part used were leaves (37.5%), stem bark (18.1%), root (16.7%), fruit (13.9%), seed (8.3%) and aerial part (5.6%). The commonest plant species identified include *Manihot esculenta* Crantz, *Mimosa pudica* L., *Zea mays* L., *Sida acuta* L., *Allium cepa* L., *Allium sativum* L., *Zingiber officinale* Roscoe, *Piper guineense* Schum, *Ocimum gratissimum* L., *Azadirachta indica* A. Juss, *Moringa oleifera* Lam., and *Aloe vera* L. All the plants identified in this work have been used by the herbal practitioners and adjudged to be effective. Despite the survey, more research is needed in the extraction and isolation of active chemical constituents in these plants for drug production and other pharmaceutical purposes.

Keywords: Ethnobotanical, survey, fertility, Ebonyi State, Nigeria.

INTRODUCTION

Clinically, infertility is a disease of the reproductive system associated with the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse [1]. Infertility affects 15% of reproductive aged couples globally. In Sub-Saharan Africa, more than 30% of women aged 25 – 49 suffer from secondary infertility; the failure to conceive after an initial first pregnancy. Male infertility has been discovered to be 50% cause of a couple's failure to conceive [2]. In many cultures, childless women suffer discrimination, stigma and ostracism. Stigmatization could be extreme in some countries where infertile couples are perceived as burden to the socioeconomic status of their communities. Stigmatization may come from siblings, parents and in-laws as a result of disappointments for the loss of their family continuity [2].

While the need for assisted reproduction may be provided, it may be criticized due to overpopulation problem, arguing that over fertility and not infertility should be of concern in family planning and that expensive treatment cannot be justified when there are other pressing problems that should be given priority. Failure to become pregnant or get a child can result to being ostracized, mental disorder and suicide. It can

lead to the denial in the participation of some family and community traditions and rites [3].

Fertility problems in women could be caused by ovulation disorder, poor egg quality, damaged womb or fallopian tube, pelvic inflammatory disease (PID), age. Usually, biggest decrease in fertility begins during the mid- thirties. Other causes may include bowel diseases, underweight and epilepsy [4]. Fertility problems in men can be caused by blockage in the ducts that carry the sperm; this may be low sperm, unusually shaped or not very mobile. Ejaculation problem can be psychological or physical [5]. There is also varicoceles in which case there is enlarged veins in the scrotum and can affect sperm production [6, 5]. Fertility challenges in men are also associated with damaged testicles. In both sexes, it can be caused by sterilization, side effects of medications and drugs, alcohol, overweight, smoking, diabetes, sexually transmitted infections and stress [4].

Women with abnormal menstrual cycles may have a higher risk of infertility [7, 8, 9, 10 and 11]. Lifestyle may affect menstrual function due to alteration in hormonal pattern which affects ovulation [12]. Menstrual cycle irregularity in adulthood is associated with anovulation and infertility [13, 14].Threatened miscarriage is a vaginal bleeding before

20 gestational weeks and one of the commonest complications in pregnancies [15, 16]. 17% of cases are expected to show complications in the course of the pregnancy while management of threatened miscarriage is mostly empirical [17]. Older women are at the increased risk of having miscarriage in the general population especially above 34 years [18]. Having had previous miscarriages is also associated with increased risk in future pregnancies [15]. Threatened miscarriage occurs sometimes and is a serious emotional problem for women [16].

The people of Ebonyi state of Nigeria employ herbal medicine for the treatment of diseases, though there are hospitals in the state. Several western pharmaceuticals in Nigeria have their origin in plants. Some of these medicinal plant products are taken as light and simple diets, fruits, decoction, extracts, maceration and infusion. This plant product

complements health care [19]. An inventory of plants used for the treatment of fertility conditions will assist in the conservation of such plant species and may lead to the isolation of useful ingredients for the production of drugs and other medicinal consumables.

METHODS

STUDY SITE

The survey was done in Ebonyi State. Ebonyi State is one of the 36 States of Nigeria (Fig 1.). Ebonyi State is located approximately longitude 7.30' and 8.30'E and latitude 5.40' and 6.45'N. It was created on 1/10/1996 with Abakiliki as the state capital. It is bounded by Benue State at the North, Enugu State at the West, Cross- River at the East and Abia State at the South. There are thirteen Local Government Areas (LGAs) in the state. Ebonyi State has a population of about 2,176,947 with a total land area of 5,533 sqkm [20].



Fig. 1: Map of Nigeria showing Ebonyi State (shaded portion)

DATA COLLECTION

Collection of data was done between September, 2013 and June, 2014. The names of the plants used as remedies for fertility conditions such as infertility, low sperm count and menstrual disorder were included in the information collected from the field. Semi- structured interview comprising of questionnaires and conversation with 36 traditional herbal practitioners, aged between 35 and 66 years was done in the different zones of the state in the course of the exercise.

The plants named in the field were collected and identified in the taxonomic unit of the Department of Plant Science and Biotechnology of Michael Okpara University of Agriculture, Umudike, Abia state.

RESULT

62 plant species belonging to 41 families were identified (Table 1). Plant families mostly used were Euphorbiaceae, Fabaceae, Apocynaceae and Annonaceae (Table 1). Plant parts mostly used were leaves (37.5%), stem bark (18.1%), root (16.7%). Other parts included fruit (13.9%), seed (8.3%) and aerial parts (5.6%).

Table-1: Plants used as remedy for fertility conditions in Ebonyi State of Nigeria.

FAMILY	BOTANICAL NAME	COMMON NAME	IGBO NAME	PART USED	USES
1.Euphorbiaceae	<i>Phyllanthus amarus</i> Schum. And Thonn	Stone breaker	Enyikwonwa	Aerial part	Treatment of menstrual disorder.
2.Euphorbiaceae	<i>Manihot esculenta</i> Crantz	Cassava	Jigbo	Root	Treatment of low sperm count and weak erection.
3.Euphorbiaceae	<i>Macaranga barteri</i> Mull. Arg.	Macaranga	Owriwa	Leaves and bark	Used as remedy for irregular menstruation.
4.Euphorbiaceae	<i>Uapaca heudelotti</i> Baill.	Akun	Ibia ile	Root and bark	Treatment of sterility in women
5.Fabaceae	<i>Glycine max</i> (L.)	Soya beans	Ijikara	Seed	To boost potency.
6.Fabaceae	<i>Mucuna pruriens</i> (L.) DC	Cowhage, buffalo bean	Agbala, agbara	Aerial part	Treatment of male infertility.
7.Fabaceae	<i>Mucuna sloanei</i> Fawc and Rendle	Sea bean, Horse eye	Ukpo	Seed	Used as remedy for low sperm count and weak erection.
8.Fabaceae	<i>Mimosa pudica</i> L.	Sensitive plant	Kpakorukwu, kpakochuku	Leaves	Treatment of menstrual disorder.
9.Apocynaceae	<i>Voacanga africana</i> Scott. Elliot	Kokiyar	Pete- pete	Stem bark	Treatment of abnormal menstrual flow.
10.Apocynaceae	<i>Holarrhena floribunda</i> (G. Don) Durr. And Schinz	Holarrhena, Conessi	Okwe	Root	Treatment of infertility in female.
11.Apocynaceae	<i>Picralina nitida</i> Staph	Akuamma	Osi- igwe	Leaves	Treatment of infertility in women.
12.Apocynaceae	<i>Rauwolfia vomitoria</i> Afzel	Serpent wood, Snake root.	Akanta	Root and leaves	Treatment of menstrual disorder.
13.Annonaceae	<i>Uvaria chamae</i> P. Beauv.	Bush banana, finger root.	Okpa okuko	Root	Treatment of abnormal menstrual flow.
14.Annonaceae	<i>Annona senegalensis</i> Pers	Custard apple	Anya nwonwa	Leaves	To enhance potency in male.
15.Annonaceae	<i>Xylopi aethiopica</i> (Dunal) A. Rich.	Ethiopian pepper	Uda	Fruits	Treatment of infertility in women.
16.Annonaceae	<i>Enantia chlorantia</i> Oliv.	African whitewood	Awogba, oso pupa	Stem bark	Promotes fertility in women.
17.Moraceae	<i>Ficus platyphylla</i> Del.	Gutta percha tree	Nishiki	Leaves	Treatment of infertility in women.
18.Moraceae	<i>Ficus capensis</i> Thumb	Fig	Ikoru	Leaves	Treatment of threatened miscarriage.
19.Graminae	<i>Pennisatum purpureum</i> Schum	Elephant grass	Ukpo ukwu	Leaves	To boost fertility in women.

20.Graminae	<i>Zea mays</i> L.	Maize	Oka	Seed (dried)	Used as remedy for low sperm count and weak erection.
21.Menispermaceae	<i>Cocculus pendulus</i> (J.R and G. Frost) Diels	Falor	Njam nja	Leaves	Treatment of infertility and irregular menstrual flow in women.
22.Menispermaceae	<i>Sphenocentrum jollyanum</i> Pierre	Moonseed	Nkpokiri	Roots	Treatment of impotency and erectile dysfunction.
23.Bignoniaceae	<i>Newbouldia laevis</i> P. Beauv Seeman ex Bureau	Tree of life, fertility tree	Ogirisi	Leaves and root	Management of threatened miscarriage.
24.Bignoneaceae	<i>Kigelia africana</i> (Lam.) Benth	Africana sausage tree, cucumber tree	Uturukpa, uturubien		Treatment of male infertility.
25.Malvaceae	<i>Sida acuta</i> Burm	Broom weed	Ogirishi	Leaves	To arrest threatened miscarriage.
26.Malvaceae	<i>Hibiscus sebdariffa</i> L.	Sour Tea	Okwuru ozo	Root	Promotes fertility in women.
27.Amaryllidaceae	<i>Allium cepa</i> L.	Onion	Yabasi	Leaf (bulb)	Enhances sexual ability.
28.Amaryllidaceae	<i>Allium sativum</i> L.	Garlic	Ayuu	Leaf (bulb)	Promotes and restores fertility in male.
29.Zingiberaceae	<i>Zingiber officinale</i> Roscoe	Ginger	Jinja	Stem	Treatment of threatened abortion and hormonal imbalance.
30.Zingiberaceae	<i>Afromomum melegneta</i> K. Schum.	Alligator pepper	Ose orji, okwa	Fruit	Remedy for female infertility.
31.Tiliaceae	<i>Glyphea brevis</i> (Spreng) Monach	Litambia	Aloanyasi	Root	Treatment of menstrual disorder.
32.Tiliaceae	<i>Corchorus olitorius</i> L.	Bush okra, Jew's mallow	Ahuhara	Leaf	Remedy for menstrual disorder.
33.Cucurbitaceae	<i>Momordica charantia</i> L.	Bitter melon, bitter gourd	Ndeme	Aerial part	Treatment of female infertility
34.Cucurbitaceae	<i>Citrullus colocynthis</i> (SCHRAD)	Bitter apple, desert gourd	Ewuro	Fruits and leaves	Promotes and restores fertility in male.
35.Asteraceae	<i>Vernonia amygdalina</i> Del. Holl	Bitter leaf	Onugbu	Fruit	Treatment of menstrual disorder.
36.Agavaceae	<i>Dracaena mannii</i> Bak	Soap tree	Okpurukwa	Leaves and bark	Decoction of bark is used to treat male impotency.
37.Bombacaceae	<i>Ceiba pentandra</i> (L.) Gaertn	Silk cotton	Akpu- ogwu	Stem bark	Management of threatened miscarriage.
38.Boraginaceae	<i>Heliotropium indicum</i> Linn	Indian helotrope	Okwuru ezi	Leaves	To arrest threatened miscarriage.

39.Loganiaceae	<i>Anthocleita djalonenis</i> A. Chev.	Cabbage tree	Uvuru	Root	Treatment of infertility and irregular menstrual flow.
40.Piperaceae	<i>Piper guineense</i> Schum	African black pepper, Bush pepper	Uziza	Leaves	Treatment of infertility and irregular menstrual flow in women.
41.Vitaceae	<i>Ciccus populnea</i> Guill. Perr.	Food gum	Okoho	Stem	Treatment of low sperm count.
42.Lamiaceae	<i>Ocimum gratissimum</i> L.	African basil, Clove basil	Utazi	Leaves and fruit	Treatment of low sperm count.
43.Plantaginaceae	<i>Plantago major</i> (Linn)	Plaintain	Ojoko, ogede-ojoko	Fruit (unripe)	To boast potency.
44.Santalaceae	<i>Viscum album</i> L.	Mistletoe	Ngwu	Leaves	Treatment of infertility and menstrual disorder.
45.Meliaceae	<i>Azidirachta indica</i> A. Juss	Neem	Dogonyalo	Leaves	Treatment of low sperm count.
46.Musaceae	<i>Musa sapientum</i> Ivan A. Ross	Banana	Une, unere	Fruit	Treatment of low sperm count.
47.Clusiaceae	<i>Garcina cola</i> Heckel	Bitter cola	Akuilu	Seed	Treatment of low sperm count.
48.Colchiaceae	<i>Glorisa superb</i> L.	Flame lily, glory lily.	Okpa ekele	Leaves	Treatment of infertility.
49.Pedaliaceae	<i>Sesamum radiatum</i> Schum. And Thonn.	Benniseed, black sesame.	Agbala	Leaves	Treatment of male infertility.
50.Sterculiaceae	<i>Cola nitida</i> (Vent) Schott and Endl.	Kola	Oji	Seed (Cotyledon)	Treatment of low sperm count and weak erection.
51.Irvingiaceae	<i>Klainedoxa gabonensis</i> Pierre ex Engl	Kroma	Odudu	Stem bark	Treatment of male impotency.
52.Connaraceae	<i>Cnetis ferruginea</i> (CF) Vahl ex DC	Leaf of the dog	Okpe-isi-uketa	Leaf and root	Leaf is used for the treatment of menstrual disorder while the roots are used for the treatment of low sperm count and weak erection.
53.Rubiaceae	<i>Nauclea latifolia</i> L.	African peach	Ubulu inu	Stem and root	Treatment of menstrual disorder.
54.Caesalpinaceae	<i>Stemonocoleus micranthus</i> Harms	Hianana	Nre	Stem bark	Helps in conception (pregnancy).
55.Moringaceae	<i>Moringa oleifera</i> Lam	Horseradish tree	Okwe-bekee, Okwe-oyibo	Seed	Treatment of infertility in female and low sperm count.
56.Caricaceae	<i>Carica papaya</i> Linn	Paw paw	Okwuru-bekee	Fruit (unripe)	Treatment of impotency in men.
57.Myrtaceae	57.Myrtaceae	Guava	Gova	Fruit	Treatment of erectile dysfunction and low sperm count.
58.Leguminoseae	<i>Tetraptera tetraptera</i> (Taub)	Aridan	'uhiokirihio'	Bark	Promotes fertility in women.
59.Acanthaceae	<i>Acanthus</i>	Bear's	Inyiyi ogwu	Aerial part	Treatment of

	<i>montanus</i> (Nees.) T. Anderson.	breech, Mountain thistle			menstrual disorder.
60.Amaranthaceae	<i>Amaranthus spinosus</i> Linn	Spiny amaranth, prickly amaranth	Inine ogwu	Leaves	Increases sperm count.
61.Liliaceae	<i>Aloe vera</i> L.	True Aloe, Burn plant	Alo	Leaf (bulb)	Increases sperm count.
62.Violaceae	<i>Hybanthus enneaspermus</i> (L) F. Muell	Spade flower	Isolala ocha	Leaves and stems	Promotes fertility in women.

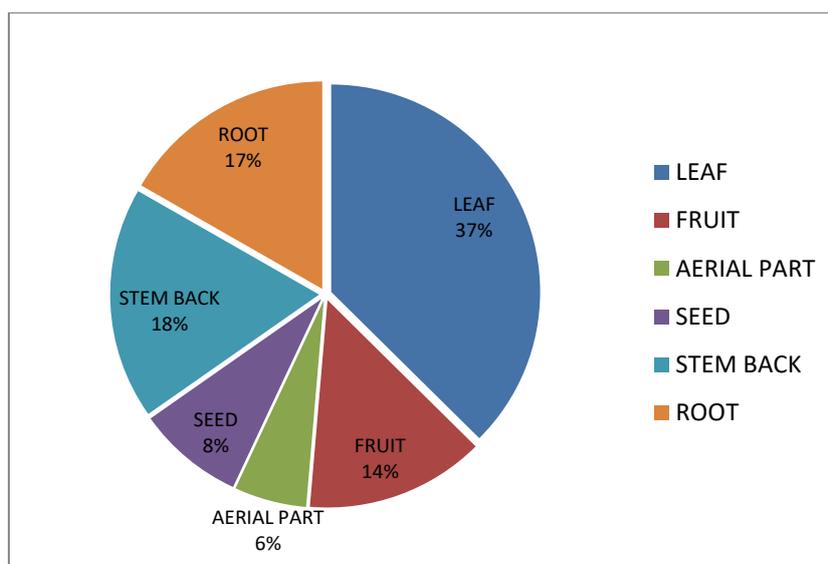


Fig. 2: Pie chart showing plant parts used.

DISCUSSION

The outcome of this survey shows that several herbal practitioners employ different plant species as remedy for various fertility cases and therefore the information about the medicinal value of the plant species and the diseases they treat vary from one individual to another. The inventory depicts that Euphorbiaceae, Fabaceae, Apocynaceae and Annonaceae were families mostly used in the treatment of fertility problems (Table 1). These plant families are among the ones mostly seen in Nigeria [21, 22]. The plants found in this survey are in line with the work of other researchers on plants used in the treatment of fertility conditions. Such plants used in the treatment of infertility include *Antheclita djalensis* and *Xylopi aethiopica* [23], *Picralima nitida* and *Holarrhena floribunda* [24], *Newbuoldia laevis* and *Moringa oleifera* [25].

In a survey of herbal treatment of several diseases such as diabetes, infertility, hypertension and sickle cell anemia in Togo, comprising of 72 plants belonging to 36 families, Euphorbiaceae family with 8 species was most represented in terms of the of species [26]. Ethnobotanical surveys have been conducted on fertility problems which include; male sexual

dysfunction and infertility [27] and female infertility, sexual dysfunction and extramarital activity [28, 29, 30].

The therapeutic potential of the plant species under this investigation shows that they possess some phytochemicals and metabolites which are relevant in the treatment of these diseases. Some phytochemical and anti-microbial research done on some of the plants documented include *Garcinia cola* [31, 32, 33], *Ocimum gratissimum* [34, 35, 36], *Zingiber officinale* [37, 38], *Carica papaya* [39, 40], *Azadirachta indica* [41] and *Moringa oleifera* [42, 43]. Scientific studies and experimental screening of these plants are on the increase. Hence, forest reserves, farms and medicinal gardens should exist to protect these plants from extinction.

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