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Ethnobotanical survey of medicinal plants used for traditional reproductive care by Usen people of Edo State, Nigeria

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ABSTRACT

The aim of this work is to document medicinal plants associated with traditional female reproductive care by Usen people of South Western Nigeria. Reproductive care is necessary to maintain reproductive fitness, correct anomalies, enhance satisfaction and completeness, especially among married couples. Plants used in traditional medicine define the field of ethnomedicine, which is a subfield of ethnobotany. Through structured questionnaires, personal interviews and guided trips, primary information on plant and plant parts used, mode of usage and when used were obtained from 100 key informants. The informants included full time herbalists (13%), part-time herbalists (8%), town elders (16%), farmers (22%), civil servants (23%) and housewives (18%). A total of thirty-six plants species belonging to twenty-five plant families were recorded. Dominant plant family was Malvaceae with four representative species. Among the plants surveyed 10, 12 and 16 plants were documented for female fertility, pre and post-natal care functions respectively. The major plant part used was the leaves (62%). Others are stem bark (13%), roots (11%), seeds (5%), shoot (3%) whole plant (3%) and fruit liquid (3%). Some of the plants encountered were solely administered while others were administered in conjunction with other plants, animal extracts and incantations. Surveyed plants were identified, collected and housed in the University of Benin Herbarium. These plants resources are potential raw materials for manufacturing drugs associated with the management of reproductive health care challenges.

Keywords: Ethnobotany, Medicinal plants, Reproductive care, Plant survey, Usen people

1. INTRODUCTION

Humans use plants to solve their basic needs, relying on innate curiosity to evolve new roles for plants. Traditional medical practices is becoming increasingly relevant and should no longer be consid-ered as a system of the past. Rather it should be innovated to play contemporary roles in our hugely industrialised world. This practice holds a huge reservoir of raw materials and knowledge. According

to Okoli et al. [1], traditional medicine dates as far back as 4000 years and used to be the sole medical system before the introduction of modern medicine. But we believe the practice is older and began with plant domestication around 9000 Before Common Era specifically in the Neolithic period. In the past, plants are believed to possess medicinal properties and this led to the establishment of "Doctrine of signature" [2]. This is the belief that any plant part which resembles the organ of human body, is created for the cure of ailments of that part [3]. Traditional medical practitioners using indigenous medicinal plants continued to play major roles in the treatment of female infertility [4]. This affordable practice is easily accessible and is a solace to people without access to modern medicines. Plants used in traditional medicine define the field of ethnomedicine. Although ethnomedicine largely involve plants, other living things and cultural practices are often incorporated. Ethnomedicine is considered a subfield of ethnobotany. Osawaru and Ogwu [5] referred to ethnobotany as the realm of interaction between humans and plants in their environment because it essentially documents the practices and traditional knowledge base of crops. While Ogwu et al. [6] viewed it as the relationship between people of a given community or society, the environment and the plant diversity in that community because it is an integral part of indigenous knowledge of a particular society.

The practice and application of ethnobotanical knowledge in the treatment of ailments such as infertility is the focus ethnomedicine. Infertility is the inability of a couple to achieve pregnancy over an average period of one year (in a woman under 35 years of age) or 6 months (in a woman above 35 years of age) despite adequate, regular (3 - 4 times per week), unprotected sexual intercourse and may also be referred to as the inability to carry a pregnancy to the delivery of a live baby [7]. It is a global health issue affecting approximately 8 -10 % of couples [8]. Female infertility is caused by leukorrhea, menopause [9], menstrual disorder [10], and faulty uterus and ovaries. The reports of Bertuccio et al. [11] suggested that women with abnormal menstrual cycles may have a higher risk of infertility. 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].Threatened miscarriage is associated with vaginal bleeding before 20 weeks of gestation and is one of the most common complications in pregnancies [14]. Having had previous miscarriages is also associated with increased risk in future pregnancies [14].Threatened miscarriage occurs sometimes and is a serious emotional problem for women [15]. It is estimated that there are 60 - 80 million infertile couples worldwide and 10 – 15 % of married couples are affected [16].

In many cultures, childless women suffer discrimination, stigma and ostracism, mental disorder, suicide and denial in the participation of some family and community traditions and rites [8; 17]. Childbearing is an extremely important event in every human's life and is strongly associated with the ultimate goals of completeness, happiness and family integration [18]. As a result, the quest of infertile women to resolve the problem of infertility has resulted in the patronage of various treatment outlets which is determined by social, cultural, and behavioural factors [4]. Plants reported for their medicinal remedies include Alstonia booneei, in which the stem bark and root is used to treat fever [19]. The root and bark when consumed orally may be used as remedy for epilepsy and to expel retained placenta respectively [20]. Idu et al. [21] and Nwachukwu et al. [22] reported that *Cymbopogon citrates* can be used to treat fever. *Bryophyllum pinnatum* when the leaves are passed over fire for about a minute and the resultant fluid taken orally, may produce relief for cough during pregnancy [20]. The root of *Ficus exasperata* is used to treat venereal diseases [19]. After delivery, there is need for proper care of both mother and child due to potential postnatal problems, which may include excess bleeding and breast-associated problems such as inability to breastfeed, produce milk and anaemia. Therefore, just as antenatal care, post-natal care is also important.

In rural communities like Usen, herbal medicine play essential roles in reproductive health care as it is cheaper, preferred and regarded as more effective due to its proven efficacy. Medicinal plants have been used for ages including *Vernonia amygdalina* and *Ocimum grattissimum*, which are acclaimed amongst Usen people to boost immunity of both the child and mother before and after delivery as well as regulate breast flow respectively. At present, no official documentation of traditional medicinal practices for female fertility, pre-natal and post-natal of the Usen people exists. Therefore, the present study seeks to document the traditional medicinal practices associated with reproductive care especially female fertility, pre-natal and post-natal care of the Usen people. As well as to identify plants that are used as well as when and how they are used. This record will

potentially be useful for the exploration of raw materials for the production of reproductive health drugs.

2. METHODOLOGY

2.1. Study area

Usen is a town situated at the North-West of Benin city and South East of Ile-Ife in Ondo state. The town covers an area approximately 16 square kilometres. Usen is located in Ovia South West Local Government Area of Edo State (Figure 1). According to Egharevba [23], the present day Usen started as a farmstead around thirteenth century Common Era. It was founded by a farmer called Oyebo who was an indigene of Bini. He relocated from Ife to Usen because of the soil fertility in Usen. It was as a result of Oyebo's success that more people migrated to this new land, which Oyebo referred to as 'Ufe-Kekerhe' (meaning 'small Ife'). The first ruler Usen was the eldest son of the Ooni of Ife (Prince Afelogiyan), who on ascension changed the name of the town to 'Ode Awure' (land of fortune) to avoid conflict with their ancestral home, Ife in present day Osun state South West, Nigeria.

Prince Oranmiyan left for Benin after staying with his elder brother, Prince Afelogiyan at Ode Awure for a while. He promised his brother that he will return to the land in five days' time, in his words: 'Usen ere', meaning "in five days' time". However, the promise was not kept. From the promise of five days, according to this myth of origin, Ode Awure derived her present name 'Usen'. This version of the name, 'Usen' is acceptable to the Bini people and some indigenes of Usen who supported the writings of Egharevba [23], other authors and folklores. However, some indigenes of Usen disagree with the fact that the name of a long existing settlement would be changed on the ground of the non-fulfillment of an inconsequential promise. They claim that if there was ever a promise, it should have been made in Yoruba and not Edo since the leaders came from Ile-Ife. This claim, however, has been acknowledged by Ikhimwin [24]. His claim was that Usen originated from Edo and not Yoruba even though the first ruler came from Ile-Ife. The founder was an Edo man who must have lived there with his family and other relations before a leader was demanded for.

Farming is the major occupation of the Usen people. Their food crops include yam, cassava, maize, plantain and pineapple. The major cash crops in Usen are rubber, cocoa and oil palm. The climate of the study area, Usen is a typical tropical rain forest with two major seasons: the wet (rainy) and the dry (harmattan) seasons. The wet season lasts from April to November and the dry season December to March. The study area, Usen is a typical lowland rainforest.

Figure 1. Map of Benin Kingdom (i.e. Edo State) showing the Location of Usen. Adapted from: Ikhimwin [23].
Keys
□ -------L.G.A
⁄⁄ ------- State Capital
⬬ ------Major towns

2.2. Data collection

Different categories of people were selected within Usen as key informants to be interviewed regarding plants used for reproductive care in Usen community, Edo State, Nigeria. A structured, open and closed-ended questionnaire was administered to key informants. Among the key informants interviewed were full-time traditional healers (herbalists), part-time trado-medical practitioners, elderly people, housewives and civil servants. They were selected based on their knowledge and experience in the traditional values and uses of plants, either directly or for close relatives and acquaintances who at one time or the other used some of these plants for female fertility related issues.

Guided walks animated by key informants were undertaken to forests, distant farmlands, home gardens and nearby bushes for identification and collection of plants and parts used. Specific questions like the botanical names, local names, plant parts used, dosage, method of preparation, application and duration of treatment were asked during the oral interview and the information supplied by these people were recorded.

Based on the knowledge of the informants, a total of 36 plants were collected and identified through professional assistance from the Department of Plant Biology and Biotechnology, University of Benin, Benin City, Nigeria. Other plant species were identified with the aid of literature, Vernacular names of Some Nigerian Plants Edo/Delta version [25].

3. RESULTS

The distribution of respondents is presented in Table 1 and plants used for reproductive care by Usen people is presented Table 2. The plant families of the plants used for traditional female reproductive care by Usen people is presented in Table 3 while the frequency distribution of the plant parts used is presented in Table 4. Table 1 shows civil servants was the most respondents in the survey while the least was part time herbalists. Civil servants and farming represent is the predominant occupation of the Usen people residing in Usen community.

A total of thirty – six medicinal plants used by the Usen people of Ovia South West Local Government Area of Edo State for the treatment of female fertility, pre-natal and post-natal were identified and documented within the study area. The identified plants belong to twenty – five families (Table 2).

The plant families distribution of plants used for female reproductive care by Usen people and their frequencies are presented in Table 3. The plants are distributed into twenty-five families and Malvaceae was the dominant plant family with four representatives. Plant part used for reproductive care by Usen people are represented in Table 4. It suggests that leaves represent the dominant plant part used.

4. DISCUSSION

Ethnobotanical survey of plants used by Usen people for female reproductive care have been carried out. The plant species, parts of the plant, when and how they are used for the treatment of female infertility, pre-natal and post-natal care were documented in this study. The practice of using plants for reproductive care has been proven to be reliable over time albeit requires innovation for improvements. Indigenous plants form the core resource base for this practice. Some of the plants used in the practice are often brought closer to home and maintained in home gardens to facilitate easy access as reported by Ogwu et al. [26]. These medicinal plants form an important component of the natural wealth of indigenous people. They are made up of plants with different habit as observed in this study. This also include plants considered as vegetables due to parts used and habit [27]. In this study, herbal medicinal preparations used for delivery including *Alstonei boonei*, *Chromolaena odorata*, *Elaeis guineensis* and *Phyllanthus amarus* were recorded while *Carica papaya* was implicated as an abortifacients in this study. Furthermore, herbal preparations for ante-natal and post-natal cares of pregnant women were also identified in this study. This perhaps explains why large percentages of child births still take place as managed by traditional birth attendants in local maternity centres. A blend of indigenous knowledge and modern scientific knowledge may be most suitable to solve the problems faced by any given society. This is necessary as the study of Ogwu et al. [28] suggest indigenous plants, which are often neglected possess hidden treasures. Indigenous knowledge is built from and based on thousands of years of experience and has been passed from one generation to another, primarily by words and folklores. This knowledge should be used to innovate ethnomedical practices associated with reproductive care. There is ample evidence that increasing number of people across various parts of the world depend on traditional herbal remedies for their health care. The local use of plants and their product in health are even much higher in rural areas. A key finding from this study is tradomedicalism [3], as tradition healers and practitioners incorporate rituals, magic, incantations, invocations and sacrifices to bolster their services. More so, Western and Middle Eastern religion, Christian and Islam respectively continue to repress the practice of ethnomedicine.

In this research, a total of thirty-six medicinal plants used amongst the Usen people for female fertility, prenatal and post-natal were identified and documented. From the inventory, ten of the thirty-six plants were used for female fertility, twelve were recorded for prenatal and sixteen for postnatal care. The plants were identified and collected for storage at the University of Benin Herbarium. The plants identified belong to twenty-five families. The families recorded in the study were also documented in the study of Diame [29]. The inventory depicts that Annonaceae,Apocynaceae, Asteraceae, Bignoniaceae, Cucurbitaceae, Euphorbiaceae, Malvaceae, Arecaceae and Fabaceae are the most widely represented families with two or more representative species. The most widely represented families with two or more representative species each while the rest had one species. The administration of these plants was either internally or externally in the form of juice, decoction, infusions or raw as single drugs.

Table 1. Distribution of respondents according to their age group

AGE GROUP	CATEGORIES						
	Full-time Herbalist	**Part time herbalist**	**Town elders**	**Housewives**	**Farmers**	**Civil servants**	**Total**
26 – 35	-	1	-	4	3	5	13
36 – 45	2	1	-	4	8	6	21
46 – 55	4	5	4	3	5	7	28
56 – 65	6	1	7	5	2	5	26
≥ 66	1	-	5	2	4	-	12
Total	13	8	16	18	22	23	100

Table 2. Plants use for traditional reproductive care by Usen people, Edo State, Southern Nigeria

S/N	Common name (English)	Common name (Usen dialect)	Botanical name	Plant family	Botanical description	Part(s) used	Mode of administration
1.	Stool wood	Ukhu	*Alstonia boonei* (De Wild)	Apocynaceae	Tree with grayish bark that exudes a bitter-tasting latex. Leaves vary in shape from elliptic to oblanceolate.	Leaves	Leaves are used to prepare soup for pregnant women to allow the foetus develop well and promote safe delivery.
2.	Creeping foxglove	Ebe-Oghoghiro	*Asystasia gagentica* (L.)	Acanthaceae	Herb with simple or opposite leaves. Fruit vary in colour from green to brown.	Leaves	Leaves are prepared separately and eaten with cocoyam, palm oil, salt and pepper during prenatal to treat swollen limbs.
3.	Neem	Dongoyaro	*Azadirachta indica* (A. Juss)	Meliaceae	Tree with wide branches. Pinnate leaves and drooping flowers.	Leaves	A decoction of the leaves is taken orally to treat malaria during pregnancy.
4.	Ebiara	Ekpagoi-eze	*Berlinia bracteosa* (Benth.)	Fabaceae	Shrub like tree with broad or globulous crown. Short bole with weak buttresses at the base.	Stem bark	The stem bark is grounded and extracted with palm oil. The extract is used to induce labour in cases of delayed labour.
5.	Resurrecti on plant	Ebeivbioven	*Bryophyllum pinnatum* (Kurz.)	Crassulaceae	Perennial shrub with opposite leaves. Panicle inflorescence with large reddish purple flowers.	Leaves	Leaves are warmed over charcoal fire and crushed to extract a juice, which is used during postnatal care by applying it on the navel of new born babies to prevent infection.
6.	Musk tree	Owi	*Buccholzia*	Brassicaceae	Evergreen tree. The	Leaves	Leaves along with

			coriacea (Engl.)		wood is yellowish white, soft and somewhat fibrous.		*Piper guineense* are crushed and applied externally on the breast to improve breast milk flow for lactating mothers.
7.	Pawpaw, papaya	Uhoro	*Carica papaya* (L.)	Caricaceae	Tree with weak, soft wooden stem yielding copious white latex crowned by terminal cluster of large edible fruits.	Seeds and Leaves	The seeds are used to induce abortion, leaves are used to treat malaria as a prenatal and postnatal care measure.
8.	Bush candle tree	Orieme	*Canarium schweinfurthii* (L.)	Burseraceae	Tree with pinnate leaves clustered at the end of the branches. White flowers and small drupe fruits.	Stem bark	Stem bark is grounded and mixed with native chalk and little water to treat swollen limbs of pregnant women.
9.	Coconut	Uviebo	*Cocos nucifera* (L.)	Arecaceae	Tree with pinnate leaves. Clustered light yellow flowers, which emerge from among the leaves.	Fruit liquid	The fruit juice is extracted and continuously consumed to treat infertility till there is a good result.
10.	Siam weed or Christmas bush	Ebe-awolowo	*Chromolaena odoratum* ([L.] R. M. King and H. Rob.)	Asteraceae	Perennial herb, hairy and glandular. Varied leaves with serrated edges. Tubular flowers are in panicles and seed are hairy achenes.	Leaves	Immature leaves are harvested and used to make soup to control excess blood flow after delivery**.**
11.	Cristmas rose	Okoso	*Combretum racemosum* (P. Beauv.)	Combretaceae	Struggling shrub (liane), which bears a mass of crimson flowers. Round stem with opposite leaves.	Leaves	Leaves are cooked and the concoction taken as a relief for vomiting when pregnant.
12.	Lime	Alimoi-negieghe	*Citrus aurantifolia* (Christm.)	Rutaceae	Shrub-like tree with irregular branches with torns. Pale green leaves. White flowers borne in clusters.	Stem and root bark	Decoction of the stem and root bark is taken to treat nausea.
13.	Cocoyam	Iyokho-ebo	*Colocasia esculenta* ([L.] Schott.)	Araceae	Monocot with large, heart shaped and pale green leaves, which have fleshy, spongy petiole.	Leaves	The leaves are heated and mashed with native chalk and used to strengthen premature babies.
14.	Jute	Ewedu	*Corchorus olitorius* (L.)	Malvaceae	Herb with shallow root. The leaves are oval to lanceolate, serrated with pointed tip. The flower is	Shoot	It is used during post-natal to treat diseases that may kill infants, especially against

					pale yellow in colour.		infections. Shoot is boiled and administered orally to the child.
15.	Lemongrass	Eteziza	*Cymbopogon citrates* ([DC.] Stapf.)	Poaceae	Tall, perennial grass with culms. Linear leaves taper towards the sheath, smooth and hairless.	Leaves	The leaves are mixed with honey and consumed daily to treat general infertility.
16.	Palm tree	Udi	*Elaeis guineensis* (Jacq.)	Arecaceae	Tree with rough, stout unbranched cylindrical trunk. Palmate leaves. Unisexual flowers. Fruits have nut, shell, pulp and kernel.	Spadix and Root	The fresh spadix is cut and cooked with the root. The liquid obtained is taken from the day of conception till delivery to prevent miscarriage.
17.	Sandpaper tree	Amenmen	*Ficus exasperata* (Vahl.)	Moraceae	Deciduous tree with distichous and alternate leaves. Flowers are unisexual varied in colour.	Leaves	Leaves juice is squeezed and extracted with palm-wine. The mixture is soaked for an hour and taken three times daily every 3 days as a breast milk booster and the leaves are chewed to prevent tuberculosis.
18.	Bitter kola	Edun	*Garcinia kola* (Heckel.)	Clusiaceae	An evergreen tree with yellow flowers spotted with purple; leaves pointed at both ends.	Fruit	The fruits are chewed by pregnant women during the first three months to prevent vomiting.
19.	Masquerade stick	Uwerhiontan	*Glyphaea brevis* ([Spreng.] Monachino)	Malvaceae	Tree with strong stringy bark. There are usually only three to five veins, including the basal veins, on either side of the midrib.	Leaves	The leaves are crushed and eaten with “eko” (a traditional food) to treat gonorrhoea. It is usually taken three times daily for three days. To treat infertility.
20.	Barbados nut	Oru-ebo	*Jatropha curcas* (L.)	Euphorbiaceae	Perennial, monoecious shrub. Alternate palmate leaves. Cyme Inflorescence formed terminally on branches. Ellipsoid fruit capsule with black seeds.	Leaves	The leaves are ground and placed on a newborn baby’s cut umbilical cord to prevent infection at this stage.
21.	Sausage	Ugbongbon	*Kigelia*	Bignoniaceae	Tree with grey bark.	Root	It is used to treat

	tree		*Africana* ([Lam.] Benth.)		The wood is pale brown or yellowish. Pinnate leaves are opposite or in whorls. Panicle flowers varied in colour. Berry fruits hangs down on long, rope-like peduncle.		infertility in women and fibroid. The root is cut into pieces and boiled in water. Also, the leaves of *Newbouldia laevis* are boiled with the roots to facilitate conception. It is taken in small quantity twice daily.
22.	Moringa/Drumstick	Ayon udin	*Moringa oleifera* (Lam.)	Moringaceae	Deciduous tree with whitish grey bark.	Leaves	The leaf juice is extracted with alcohol and used to treat malaria during prenatal.
23.	African cucumber	Ebi-sugun	*Momordica charantia* (L.)	Cucurbitaceae	Annual to perennial monoecious herb. Leaves are borne singly on stems.	Leaves	Leaves are squeezed with lime, small salt and water is added to treat fever during pregnancy.
24.	Calabash nutmeg	Ebe-noyoba	*Monodora myristica* ([Gaertn.] Dunal.)	Annonaceae	Tree with a clear trunk and horizontal branches. Leaves are alternately arranged and drooping. The fruit is a berry.	Leaves	It is used for spiritual cleansing which is believed to be responsible for infertility. This is done by bathing with the leaves.
25.	Opepe	Obiakhe	*Nauclea diderrichii* ([De wild and T. Durand] Merr.)	Rubiaceae	Evergreen tree, bole cylindrical, slender, straight and branchless but spherical crown bears thick foliage of shining leaves. Fruit is yellow and fleshy.	Leaves	Leaves are crushed and mixed with *Afromomum melegueta* and oil palm to treat continuous miscarriage, commonly called "belle dey hot". The mixture is taken orally using a table spoon.
26.	Boundary tree	Ikhimwin	*Newbouldia leavis* (P. Beauv.)	Bignoniaceae	Perennial tree. Oblanceolate leaves, broad, serrated and sessile. Fruit is long, pendulous, dehiscent capsule, dotted with glands.	Leaves	Leaves are squeezed in water and applied in the virgina to stop bleeding in threatened miscarriage.
27.	Scent leaf	Ebe-amwokho	*Ocimum gratissimum* (L.)	Lamiaceae	Perennial herb. The leaves are usually long and serrated. Flowers are arranged in spikes.	Leaves	Leaves are ground and mixed with *Afromomum melegueta* and applied externally

							on the lower abdomen of pregnant women during antenatal period to prevent miscarriages, stomach upset and malaria. It is also used during postnatal by mixing with palm oil to help regulate breast flow.
28.	Palisota	Uguela-ohuah	*Palisota hirsute* (K.Schum.)	Commelinaceae	Perennial herb. Flowers are whitish to purple while fruits are glossy and black.	Roots	The roots are cooked and taken to treat gonorrhoea, which may cause to infertility in women.
29.	Sleeping plant	Iyekebezukpe	*Phyllanthus amarus* (Schum.and Thonn.)	Euphorbiaceae	Annual herb, branched from the base, with an erect stem. Slender small leaf.	The whole plant.	The whole plant is soaked in dry gin and the extract is taken orally to treat dysentery and stomach ache both during pregnancy and after delivery.
30.	Serpentwood	Akata	*Rauvolfia vomitoria* (Afzel.)	Apocynaceae	Shrub with whorled leaves. The cymes are usually four. Drupe fruit.	Stem bark, Roots and leaves	Decoction of the roots and leaves are taken to treat menstrual disorders. Stem bark and leaves are taken orally to treat malaria as both prenatal and postnatal care measures.
31.	Broomweed	Aramwenvbi	*Sida acuta* (Burm. F.)	Malvaceae	Perennial herb or shrub. The leaf blades are usually unlobed with serrated edges. Flowers are often solitary.	Leaves	Oral consumption of the juice extracted from the leaf is used to arrest threatened miscarriage.
32.	African tragacanth	Oporipo	*Sterculia tragacantha* (Lindl.)	Malvaceae	Tree with smooth greyish bark and stiff rugose branchlets.	Leaves	Decoction of the leaves are taken to treat malaria
33.	Fluted pumpkin	Umwenkhan	*Telfairia occidentalis* (Hook F.)	Cucurbitaceae	Perennial, dioecious herb. Leaves are arranged spirally. Flowers are cream coloured and fruit is a berry.	Leaves	The leaves are squeezed and mixed with malt to treat anaemia.
34.	Aidan tree	Eseghasagha	*Tetrapleura*	Fabaceae	Deciduous tree.	Stem	The bark is used to

			tetraptera ([Schum. and Thonn.] Tauber)		Leaves are sessile and minutely hairy. Flowers are pinkish-cream turning to orange. The seeds are small, black, hard, and flat.	bark	treat general infertility problems in women.
35.	Bitter leaf	Oriwo	*Vernonia amygdalina* (Delile)	Asteraceae	Perennial shrub. The leaves are green oblong. White flowers that are small and clustered.	Leaves	The leaves are used to prepare soup for women after delivery to help them regain lost blood and improve their immunity.
36.	African pepper	Unien	*Xylopia aethiopica* ([Dunal.] A. Rich)	Annonaceae	Evergreen tree with a many-branched, narrow crown.	Seeds	Crushed seeds are used during postnatal care for lactating mothers to inhale. The aroma gives a healing effect to the womb. It is also given to women who have miscarriages.

Table 3. Distribution within plant families of plant species used in traditional reproductive care in Usen community, Edo State, Nigeria.

Plant families	Number of species	%
Acanthaceae	1	4.00
Annonaceae	2	8.00
Apocynaceae	2	8.00
Araceae	1	4.00
Arecaceae	2	8.00
Asteraceae	2	8.00
Bignoniaceae	2	8.00
Brassicaceae	1	4.00
Burseraceae	1	4.00
Caricaceae	1	4.00
Crassulaceae	1	4.00
Clusiaceae	1	4.00
Combretaceae	1	4.00
Commelinaceae	1	4.00
Cucurbitaceae	2	8.00
Euphorbiaceae	2	8.00
Fabaceae	2	8.00
Lamiaceae	1	4.00
Malvaceae	4	16.00
Meliaceae	1	4.00
Morinagaceae	1	4.00
Moraceae	1	4.00
Poaceae	1	4.00
Rubiaceae	1	4.00
Rutaceae	1	4.00

Table 4. Frequency of plant parts used

Plant parts used	Frequency	%
Leaves	23	62.00
Stem bark	5	13.00
Roots	4	11.00
Seed	2	5.00
Fruit liquid	1	3.00
Shoot	1	3.00
Whole plant	1	3.00

Among the various parts used, the leaves was mostly used followed by the stem bark, roots, the seeds, whole plant, shoot and fruit juice.

In a similar study, Nduche et al. [30] documented a total of 62 plant species from 41 families used as remedy for fertility conditions in Ebonyi State, Nigeria while Borokini et al. [31] documented 67 plants spread across 42 plant families used for traditional medicine practice for Women's health in Oyo State. Soladoye et al. [4] recorded 75 plant species belonging to 41 families were used for traditional infertility issues in Southwestern Nigeria. This study agrees with the report of Gill [3] that Nigerian flora has already made and will continue to make great contribution to the health care of Nigerians. In line with the report of Diame [29], this study also showed that more than one plant species were usually used for the preparation of remedies for reproductive health conditions in the form of infusions or decoctions and powdering.

Furthermore, the present ethnobotanical surveys revealed several reasons for the use of medicinal plants for female fertility, prenatal and postnatal. The main reason is similar to what is presented in Worku and Gebresilassie [32]. It was also discovered that there is need for conservation education to guide against the loss of this important culture. In line with the suggestions of Ogwu [33; 34] conservation education will also restore pride in the practice and enhance knowledge of the crops used in this cultural practices. This is necessary as most respondents are illiterate. Traditional medicine is often preferred to modern medicine, as they are less expensive and often regarded as being more effective [35]. Also, the challenges of maternal and child mortality are more in the rural areas where medical facilities are either lacking or grossly inadequate [36]. This study has shown that the rural people of Usen rely heavily on herbal medicine to remedy ante-natal and post-natal disorders, which are chiefly responsible for maternal and child mortality. More so, traditional herbal remedies provide health services even in highly industrialised setups because they are important pillars of culture and human socialisation [37]. Nevertheless, some authors such as Nduche et al. [30] have documented the use of some of these plants in treatments of female infertility, pre-natal and post-natal cares in various rural communities.

5. CONCLUSION

At present, there is no known documentation of plants used by Usen people for this important practice but this study has contributed to filling that void. Furthermore, some plants such as *Buccholzia coriacea* have hitherto not been reported to play roles for reproductive care but this study have implicated it as useful. The plants recorded in this study may be used for the production of female reproductive care drugs for modern medicine. More investigation is required to highlight their phytochemical properties and potentials. This traditional practice needs to be encouraged through the introduction of innovative methods and practices. Education and public enlightenment programmes can be used to project these goals. More so, this study complements ongoing activities of evaluation of different uses of medicinal plants with a view for innovative practice of ethnomedicine as well as the development drugs and germplasm management of plants used for traditional medicine by various research groups in the Department of Plant Biology and Biotechnology in University of Benin. Therefore, a need for further investigation to elucidate the efficacy of these plants is highly recommended. More ethnobotanical surveys of various clans should be carried out to provide additional knowledge that would serve as reference for further studies in medicine.

Conflicts of Interest

There are no conflicts of interest.

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