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Wild Edible Plants Consumed By Pregnant Women In Buikwe District, Uganda

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ABSTRACT : Pregnant women need adequate nourishing food for the foetus to develop well else, they experience low birth weights and diet related non-communicable diseases. Hence, they will transfer the disadvantages of malnutrition in their own lives to the next generation. Majority of the pregnant women in Buikwe are illiterate, have low incomes and lead miserable lives. Improving diets of these marginalized women requires looking into their natural resource biodiversity to find affordable and sustainable solutions. This study investigated the wild edible plants (WEPs) consumed by the pregnant women in Najjembe sub-county, Buikwe district. It also considered the preparation methods, forms of consumption, knowledge sources, collection sites and constraints to domestication and commercialization of WEPs. An ethnobotanical approach was used and through convenience sampling the respondents were recruited and data collected. Data were analysed using descriptive statistics facilitated by SPSS version 16. Sixty two WEPs were reportedly consumed by the respondents most frequently consumed being; *Amaranthus dubius* Mart. Ex Thell., *Psidium guajava* L., *Solanum anguivii*, *Cleome gynandra* L. and *Mangifera indica* L. Traditional methods of cooking were used in the preparation of WEPs. Majority of the reported WEPs comprised fruits and vegetables. Indigenous knowledge on WEPs was mainly obtained from parents and relatives. Radios were reported to play a big role in publicizing the values of WEPs. The wild was the major collection site for WEPs and some species were seasonal. Lack of germ plasm, slow germination rates, low yields, ignorance, lack of land and marginal markets are the major constraints hindering commercialization and domestication of WEPs. There are no serious regulations governing collection of WEPs from the wild. A diversity of WEPs exists in this area and if properly utilized by the pregnant women, they can tremendously improve their dietary quality and quantity.

Keywords : Wild edible plants, Pregnant women, Nutrition

1 Introduction

Nutritional vulnerability of pregnant women increases their risk to common epidemics like cholera, HIV/AIDS, pneumonia, malaria and other diet related non communicable diseases [1]. Research has proven that malnourished individuals succumb easily to these hazards because of impaired immune system [2]. During pregnancy, 30 000 kcal (336 MJ) are required to produce a baby, increase the size of the placenta and reproductive organs, provide energy for newly formed tissues and create additional fat stores in the mother [3]. Those carrying twins or triplets are even more vulnerable because they are not only dealing with the nutritional vulnerability of the mother but also that of the children to be born. Furthermore, a pregnant woman is expected to demonstrate that she is still capable of doing any physically demanding work, feeding the whole family and be the last one to feed [4]. Campilan *et al*. [5] commented that pregnant women are the most vulnerable in poor households because “they eat less and last.” Buikwe district is entirely rural with majority of the residents being illiterate and living in abject poverty due to lack of income. This is attributable to the high unemployment rates and lack of meaningful and sustainable livelihood activities. Agriculture is the main economic activity in this area and like in the rest of the developing world, Ugandan farmers’ livelihood is still in a miserable state [1]. The major food crops grown in Buikwe are staples comprising of cassava, maize, sweet potatoes and bananas “matooke” which are not rich in the essential nutrients required during the pregnancy nutrition cycle. The dependence on a few domesticated species limits dietetic diversity and leads to over dependence on limited resources [6]. Eight species contribute 80% of total dietary energy intake – eight cereals (barley, maize, millet, rice, rye, sorghum, sugar cane and wheat) and four tubers (cassava, potato, sweet potato and yam) [7]. Furthermore, the agricultural activities of farmers in Buikwe are characterized by use of rudimentary tools, poor quality seeds, inadequate supply of agricultural chemical inputs, no irrigation and poor marketing channels. As a result, this has led to low yields, low household incomes, food insecurity, malnutrition and poor livelihood in general [8]. All these directly or indirectly influence diet composition of the pregnant women in this area. Nevertheless, Buikwe district is heavily forested and it houses Mabira Central Forest Reserve (306 km2) which contains a lot of plant biodiversity with 312 tree and shrub species [9]. Thus, it contains a lot of options from the wild edible plants which can act as a source of essential nutrients for the underresourced pregnant women. Tapan [10] adds that wild edible plants with high diversity are widely distributed in mountain forests and are valuable sources of food and medicines for domestic and commercial purposes. Despite the primary reliance of most agricultural societies on staple crop plants, the tradition of eating WEP products continues in the present day. It is generally acknowledged that WEPs are important because they provide essential nutrients to the diet, and add variety to diets to make staples more appealing to the taste [11]. Despite the fact that WEPs have existed in this area for a long period of time, their potential as sources of essential nutrients is still a mystery. The aim of this study was to enhance the use of locally available wild edible plant species in order to improve the quality of nutrition among the underresourced pregnant women in Buikwe district. In this study, the term wild edible plants refers to indigenous or exotic plants found growing naturally in the bush or within man-inhabited landscapes and do not have to be planted or tended to before producing edible parts.·

2 STUDY AREA AND METHODS

2.1 Study Area

Buikwe district lies between 0° 18' 4.32" N and 33° 3' 6.624" E. It is the home of the famous Mabira Forest and one of the youngest districts in Uganda having been approved by Parliament in 2010. It was carved out of Mukono district and covers an area of 4,974 square kilometres. The district has

eight sub-counties namely: Nyenga, Najjembe, Ssi Bukunja, Najja, Ngogwe, Buikwe, Kawolo and Wakisi, and two Town Councils, namely Njeru and Lugazi [12]. In 2011, the population of Buikwe was 418, 200 people of whom 212,000 are female and 206,000 are male [13]. The district is under tropical rainforest (equatorial) climate and therefore no distinct seasons over the year. The area has tree vegetation with average minimum temperature of 17.5^{0}C and average maximum of 27^{o}C. The rainfall pattern is bimodal with March-May and October-December rainy seasons bringing the annual average to 1200ml. Crop farming is the main sources of livelihood to the community. This particular study was carried out in Najjembe sub-county, Buikwe district (Fig1.). This is majorly because Najjembe sub-county houses the biggest part of Mabira Central Forest Reserve which contains a high diversity of wild edible plants. According to the 2014 Census summary sheets of Buikwe district, Najjembe sub-county houses a population of 33,320 people [14]. The sub-county is divided into 7 Parishes (Buvuunya, Buwoola, Kabanga, Kinoni, Kitigoma, Kizigo, Nsakya) and 39 villages. Buvuunya, Kabanga, Kitigoma, Kizigo and Kinoni parishes are adjacent to the forest whereas Buwoola and Nsakya parishes are enclaves - located inside the forest (Fig1.)

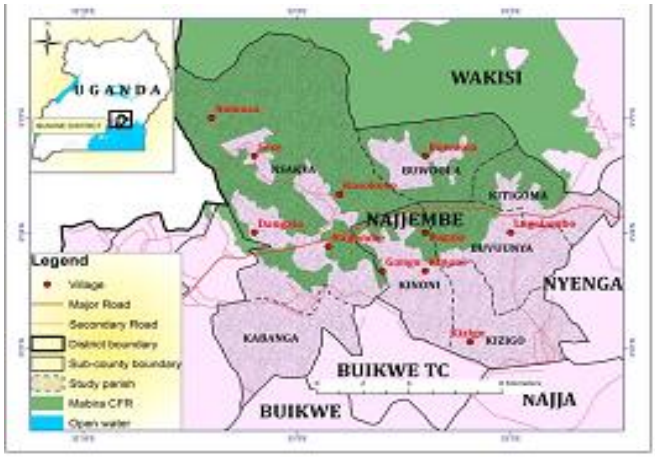

Fig. 1: *Map of Najjembe sub-county showing location of study parishes: Nsakya, Buwoola, Kitigoma, Buvuunya, Kinoni, Kizigo and Kabanga*

2.2 Methods

This descriptive study followed a cross-sectional research design and took place between March and June 2015. We used an ethnobotanical approach where both qualitative (Focus group discussions - FGDs and observations) and quantitative (questionnaire survey) data collection methods were used. The study population were pregnant women with only one important visible sign of pregnancy which is a bulged tummy. The study and its objectives were introduced to the local administrative officers and permission was sought to carry out research in their area. Before administration of the questionnaire, consent was sought from the individual respondents and those who were willing to participate were interviewed. Those who were not willing were excluded from the study. One hundred ninety six pregnant women were recruited for the study and of these 194 consumed WEPs and two did not. A pre-tested structured questionnaire having both closed and open-ended questions was used to collect information on; socio-demographics (age, location, level of education, religion, employment and household category), wild edible plants consumed (local name, habit, part used, preparation method, form of consumption, disease condition managed, frequency of mention), knowledge sources, commercialization and domestication of WEPs and WEPs' collection sites. Following questionnaire administration, four FGDs were organized each was composed of 10 pregnant women. During the FGDs, probing was done for shared or conflicting values, attitudes and meanings among group participants. Guided by the locals, walks were made to the WEPs' collection sites where voucher specimens were collected. The specimens were cleaned, pressed and deposited in the Makerere University herbarium where scientific identification was done following the Flora of Tropical East Africa (FTEA). The questionnaires were extensively checked for completeness, consistency and validity before data entry and analysis. A code book was developed using Statistical Package for Social Sciences (SPSS) software version 16 and the questionnaires entered. Frequency distribution of all variables was run to check for any unfamiliar pattern in the process of data entry. Using descriptive statistics, frequencies and means were generated. Graphs and pie-charts were used for data presentation. Qualitative content analysis was done for both FGDs and open-ended questions. All the notes were read through and systematically analysed for commonalities, variations and disagreements. This analysis was done manually.

3 RESULTS

3.1 Socio-demographic characteristics of the respondents

Majority of the respondents (61%, N = 194) were middle aged with an average age of 26 years. High levels of illiteracy were witnessed as many of the respondents had only attained primary (48%) and secondary (42%) education. The respondents were mainly Christians (54%) living in male headed households (84%) and doing farming (62%) as their major source of income.

3.2 Ethnobotany of Wild Edible Plants

Sixty two wild edible plant species distributed in 35 families and 50 genera were reportedly consumed by the respondents (Appendix A). The plants have been listed by their; family, scientific name, voucher number, growth habit, part used, preparation method and form of consumption. The last column shows the percentage utilization in various modes for the species which was based on the number of people who reportedly consumed the food plant (frequency). Herbs (36%) comprised majority of the WEPs followed by the fruit trees - 32.2% (Fig2.).

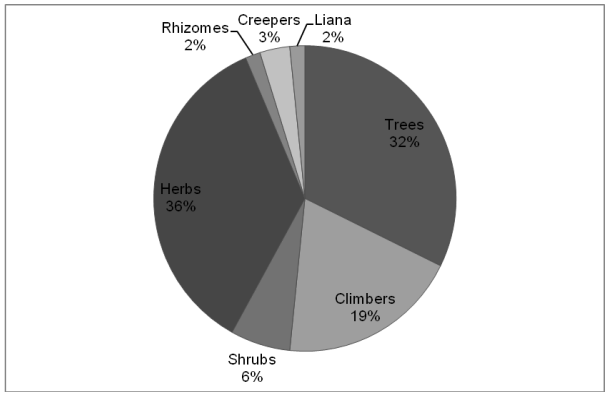

Fig2. : *Growth habits of the wild edible plants consumed*

Fruits (39%) and leaves (23%) being the most frequently consumed plant parts, majority of the WEPs were eaten as snacks (36%), vegetables (21%) and sauce (22%) as shown in fig3. and fig4. respectively. The households used traditional methods of cooking in preparation of the WEPs and these included boiling (31%) and steaming (21%) mainly for the staples and vegetables (Fig5.). The fruits were mainly eaten raw (26%) with the exception of some which served as sauce or vegetables. These were either boiled, steamed, fried or sun dried and they included *S. lycopersicum* (vegetable and sauce), *S. anguivii* (vegetable), *L. cylindrica* (vegetable and sauce), *S. edule* (sauce), *C. lactescens* (sun dried snack) and *C. sweinfurthii* (boiled snack) (Appendix A).

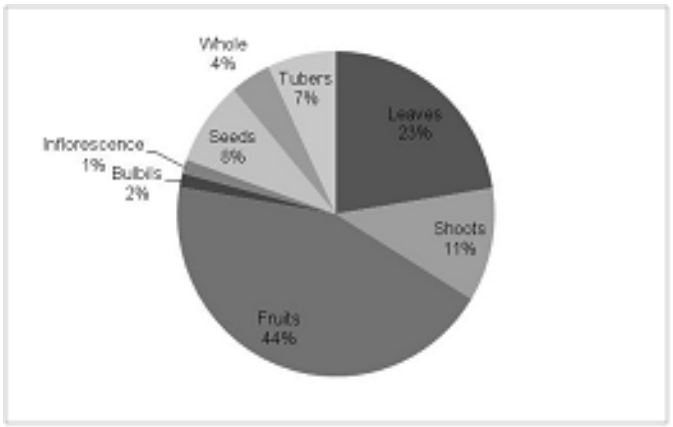

Fig3. : *Wild edible plant parts consumed*

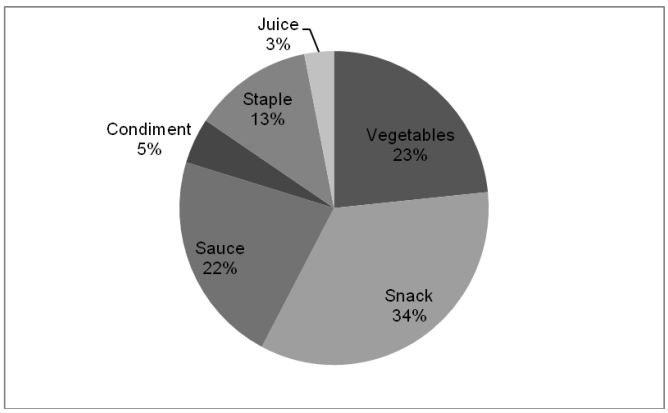

Fig4. : *Forms of consumption*

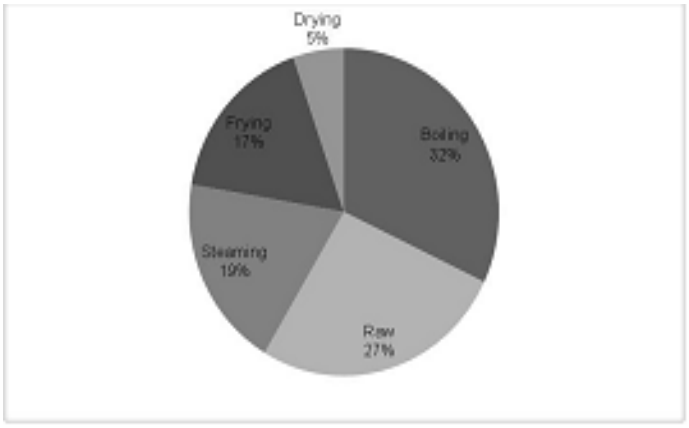

Fig5. *: Preparation methods for wild edible plants*

Some WEPs were reported to be used both as food and nutritherapeutics for managing certain disease conditions (Table 1). The most frequently consumed wild edible plant species were *Amaranthus dubius* (58%), *Psidium guajava* (50%), *Solanum anguivii* (46%), *Cleome gynandra* (43%) and *Mangifera indica* - 41% (Fig6.).

Table 1: *Wild Edible Plants used as Nutritherapeutics by the Pregnant Women*

Family	**Species**	**Condition managed**
Basellaceae	*Basella alba* L.	Constipation
Caesalpiniaceae	*Tamarindus indica* L.	Appetite stimulant
Zingiberaceae	*Aframomum angustifolium* K. Schum	Seeds are used for deworming
Solanaceae	*Solanum nigrum* Pax. Ex Dunal	Hypertension
Solanaceae	*Solanum anguivii* Desf.	Hypertension
Lamiaceae	*Ocimum gratissimum* Forssk.	Stomachic
Annonaceae	*Annona muricata* L.	Cancer/ Skin diseases
Asclepiadaceae	*Mondia whytie* Skeels	Bad breath
Asteraceae	*Bidens pilosa* L.	Stomach wounds
Malvaceae	*Hibiscus sabdariffa* Baker	Anaemia
Zingiberaceae	*Cucurma longa* L.	Cancer
Rutaceae	*Citrus limon* (L.) Burm. f.	Cough/ Hypertension

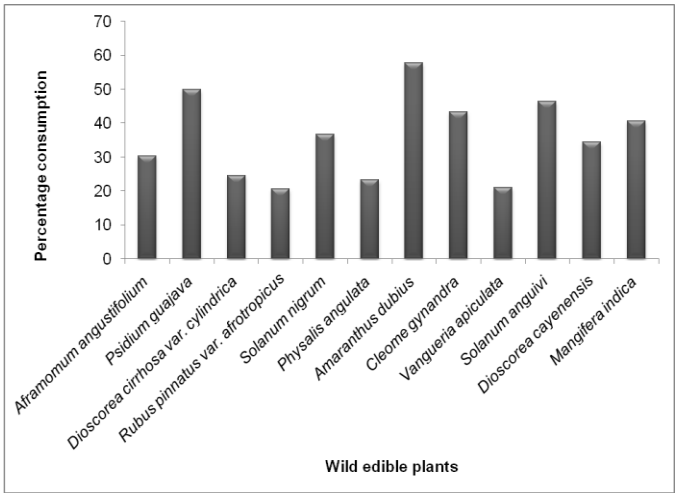

***Fig6**. : Frequently consumed wild edible plants*

3.3 Sources of Indigenous Knowledge on the values of WEPs

Majority of the respondents (90%) obtained indigenous knowledge concerning roles of WEPs in their diets from parents and relatives (Fig7.). Respondents who were ignorant about the values of WEPs and where to find them obtained information mainly from radios - 82.4% (Fig8.). Most of the WEPs consumed were either being collected from the wild (61.3%) or bought them from the market (51.3%) and a few were given by relatives or friends - 25% (Fig9.). Furthermore, those who collected these plants from the wild, 97% were staying near the wild habitats and only 3% were staying far away. Fifty seven percent of the respondents mentioned that WEPs were available throughout the year whereas 43% said that these plants were seasonal. They were only available at certain times of the year that is from March - June and October – November.

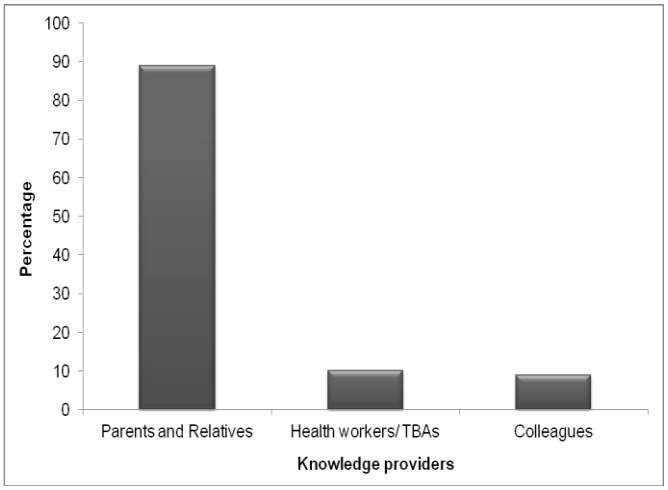

***Fig7. :** Providers of knowledge concerning wild edible plants*

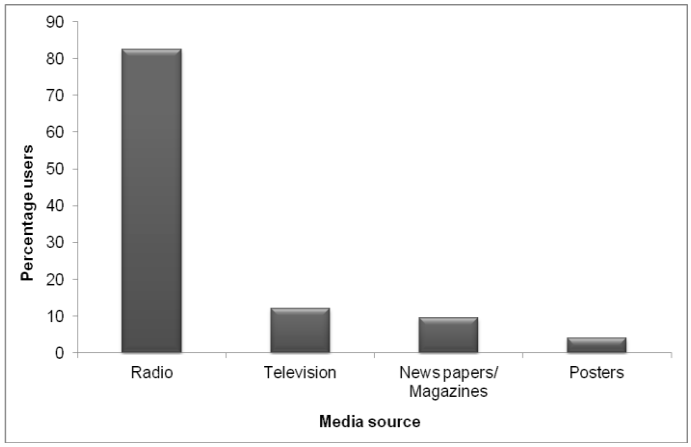

***Fig8. :** Media sources of information on wild edible plants*

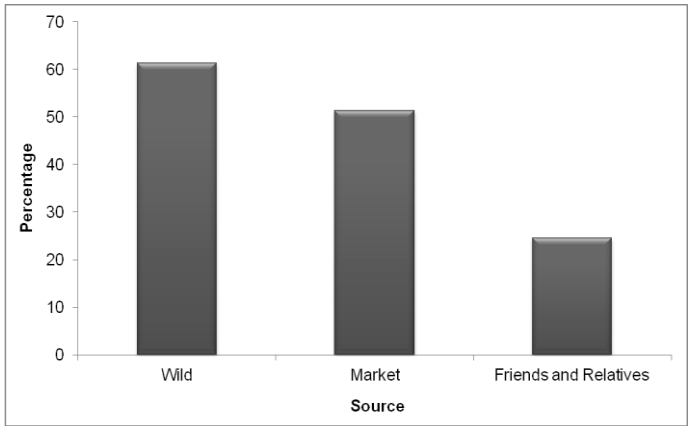

***Fig9. :** Collection sites for wild edible plants*

3.4 Commercialisation and Domestication of WEPs

Eighty six percent of the respondents did not harvest WEPs for commercial purposes and 52% are not doing anything to increase the yield of these species. Majority of the respondents are neither commercializing nor domesticating WEPs because:

They are available in small quantities so not enough to meet the market demand; Marginal markets because most people do not buy these plants; Those plants when grown they have low yields and take long to grow so that business is not viable; Lack of capital to start the business; The market place where I could take them for sell is too far; I do not want; I just buy them from the market so no need to grow them; I have limited knowledge about these plants; I know the value of these plants to my health so why should I commercialize them; I live in town and do not have land for growing them; The seeds of those plants are hard to get; I do not know the value of these plants; They just give them to me; I only collect from the forest for home consumption; I do not have time for cultivating these plants; I see no reason for increasing the yield.

3.5 Regulations restricting collection of WEPs from the wild

Sixty point five percent of the respondents mentioned that there are no regulations governing collection of WEPs from the wild whereas 39.5% reported that some regulations existed like:

National Forest Authority regulations where entry in certain parts of the forest is restricted and collection of certain species is prohibited especially the endangered species; You need to get permission from the owners to collect WEPs from their land; It is not allowed by my religion to pick anything from the forest because it is considered as a sacred ritual ground.

4 DISCUSSION

Generally, there is a diversity of wild edible plants as reported by the respondents in this study. These species give the pregnant women a variety of options from which to choose dietary additions. Each wild edible plant was given a frequency basing on how many women reported to be consuming it. A high frequency is an indication of the popularity of the particular food plant in the area whereas a small frequency may imply that the plant is consumed by few people, it is rare in the area or the locals are ignorant about its uses. Results show that the most frequently consumed WEPs were mainly comprised of fruits (*Physalis angulata, Vangueria apiculata, Aframomum angustifolium, Psidium guajava, Rubus pinnatus var. afrotropicus, Mangifera indica*) and vegetables (*Solanum nigrum, Amaranthus dubius, Solanum anguivii, Cleome gynandra*). Vegetables and fruits are sources of anthocyanins and polyphenols among other compounds [15]. Anthocyanins and polyphenols are as important nutraceuticals because of their antioxidant effects, which give them a potential role in prevention of various diseases associated with oxidative stress [16]. Oxidative stress (OS) is an imbalance between the production of free radicals and the ability of the body to detoxify their harmful effects through neutralization by antioxidants. Placental OS may give rise to a variety of complications including miscarriage [17], recurrent pregnancy loss [18], and preeclampsia, amongst others [19]. *Cleome gynandra* is believed to reduce dizzy spells in pregnant women. Regular consumption of the leaves by pregnant women eases childbirth by reducing labor length and helps them regain normal health quickly after birth. Therefore, among the Kisii (South Sudan), it is almost mandatory for women to use this before and after childbirth [20]. *Solanum nigrum* has appreciable amounts of methionine, an amino acid scarce in other vegetables. Unfortunately, it accumulates anti-nutrients like nitrates, oxalates and phenolics, which reduce the nutritive quality of the leaves. According to Edmonds & Chweya [21] nitrates are harmful to humans when consumed and converted into nitrites which oxidize ferrous ions of the blood hemoglobin, resulting in reduced oxygen-carrying capacity of the blood. Oxalates indicate the presence of oxalic acid in plant material. When ingested by humans, the acid combines with calcium to form an insoluble salt, which the body cannot absorb. This renders the calcium unavailable to the body. Phenolics bind proteins, hence interfering with the assimilation of proteins into the body. These anti-nutrients reduce the nutritional quality of the leaves. This is where having indigenous knowledge on best preparation methods for different WEPs is very vital. Boiling being the commonest method of preparation used by the respondents, can help in destroying or inactivating these anti-nutritional factors within the wild food plants like saponins, glycoalkaloids, mimosine and cyanogens. Boiled leaves of *S. nigrum* are recommended for pregnant women since their consumption is believed to result in birth of children with dark eyes and smooth skin. Moreover, pregnant women who eat these leaves are believed to recuperate well after delivery. It is also believed that children eating the vegetables do not get “marasmas” or “kwashiakor” especially if the vegetable is cooked with milk, groundnuts or simsim.”[21]. Bitter taste (alkaloids) for the case of *S. nigrum, S. anguivii* and *C. gynandra* or sliminess for the case of *B. alba* enhances the unpopularity of these vegetables especially among the women who are just learning to eat these plants. Majority of the respondents collect these plants from the wild without replanting which poses a threat to biodiversity conservation. Once these plants get depleted from the wild collection sites without domestication as a backup plan these species will soon be depleted and will remain history. There is an exception of vegetables species especially *Amaranthus* (*A. dubius, A. graecizans, A. lividus*) and *Commelina* (*C. benghalensis, C. africana*) species. These exist in the wild but always grow as weeds in the gardens and during the weeding process they are left out but this does not gurantee their sustainability. Results showed that indigenous knowledge of which WEPs to collect, how to prepare or process them, the best season or time to harvest the leaves of vegetables, tubers, fruits or seeds; knowledge of the growth cycles and memory of earlier observations (for example some fruits are poisonous when not fully ripe) was mainly obtained from the parents and relatives (90%). This means that locally, this knowledge is passed on from generation to generation. Agricultural extension programmes to rural areas mainly promoting cultivation of exotic food crops coupled with westernization are greatly contributing to the erosion of indigenous knowledge on WEPs. These greatly impact on the WEP resources and coupled with collection from the wild without domestication, WEP will be no more. Furthermore, results show that majority of the respondents reportedly acquire knowledge about WEPs from radios. This is majorly because radios are cheap therefore can easily be afforded even by a pauper and with technological inertia of mobile phones many come with radios installed making information from radios easily accessible as compared to television sets which are expensive. Therefore, media is already playing a role in the promotion of WEPs. One of the ways to increase bioavailability of nutrients from a given food to the body requires constant feeding on that particular food other factors being constant (effects of foods consumed together with WEPs, health status of the mother and time of the day when certain foods are eaten especially fruits). Unfortunately, some of these plants are rare and seasonal which greatly hinders sustainable supply of the nutrients they might contain thereby not effectively adding the required value to diets. This leaves the quality and quantity of wild edible plant diets questionable. As a solution, increasing the yield of these plants through cultivation is the best option. But looking through the challenges these women faced when trying to grow these plants like the low yields, germ plasm being hard to get, taking long to sprout gives us the need to investigate the best propagation techniques for these plants. Therefore despite the fact that these women are under resourced with low educations levels, low incomes and unsustainable livelihoods they are well armed to fight nutrition marginalization by simply making use of their rich biodiversity. This requires mass sentisatisation and education of these women about the nutrient supply potential of WEPs, best preparation methods and conservation measures.

5 CONCLUSION

A diversity of WEPs exists in Najjembe sub-county which can tremendously improve the dietary quality and quantity for the marginalized pregnant women in this area. Wild edible plants are not only best known for their food values but some are

being used as nutritherapeutics to manage certain disease conditions and they are showing positive results. Media is playing a great role in promoting the values of WEPs. Although some of the women may not be able to afford radios, televisions or magazines due to low incomes, parents and relatives are still passing on this information to the young generation. Results clearly show that the conservation status of WEPs in this area is “questionable” because their yield is not being increased by the respondents due to the associated challenges coupled with wrong confidence that the wild habitats will always be there for them to keep on harvesting at anytime they want. Furthermore, there are no serious regulations controlling collection of these plants from the wild.

6 RECOMMENDATIONS

There is need to investigate the nutrient potential of the wild edible plants consumed by these women and this will help in increasing their acceptance among other people. Appropriate propagation techniques to improve the germination rate and yield of wild edible plants need to be investigated.

Appendix A: *Wild Edible Plants reportedly consumed by the Pregnant Women in Najjembe sub-county, Buikwe District*

Family	Species, Voucher no.	Local name	Growth Habit	Part used	Preparation method	Eaten as	Frequency	Percent
Basellaceae	*Basella alba* L., NA01	Nderema	Cl	Lvs	Boiling/ Steamimg/ Frying	Vegetable/ Sauce	9	4.6
Fabaceae	*Phaseolus* species, NA02	Ebigaaga	Cl	Seeds	Boiling/ Frying	Sauce	11	5.7
Punicaceae	*Punica granatum* L., NA03	Nkoma-mawanga	T	Fr	Raw	Snack	3	1.5
Caesalpiniaceae	*Tamarindus indica* L., NA04	Omu-kooge	T	Fr	Raw	Juice	5	2.6
Zingiberaceae	*Aframomum angustifolium* K. Schum, NA05	Matungulu	Sh	Fr/ Seeds	Raw	Snack	60	30.2
Melastomataceae	*Tristemma mauritianum* Decne. Ex Trecul, NA06	Nantooke	H	Fr	Raw	Snack	3	1.5
Myrtaceae	*Psidium guajava* L., NA07	Amapeera amaganda	T	Fr	Raw	Snack	89	50
Guttiferae	*Garcinia buchananii* Jacq., NA08	Nsaali	T	Fr	Raw	Snack	9	4.6
Fabaceae	*Vigna unguiculata* (L.)Walp., NA09	Empindi	H	Seeds	Boiling/ Frying	Sauce	1	0.5
Dioscoreaceae	*Dioscorea cirrhosa var. cylindrica* C.T.Ting & M.C.Chang ., NA10	Endagu	H	T	Boiling/ Steaming	Staple	49	24.6
Euphorbiaceae	*Acalypha bipartita* Mull. Arg., NA11	Jerengesa	Sh	Lvs/ S	Boiling/ Frying	Sauce	4	2.1
Verbenaceae	*Lantana trifolia* L., NA12	Akayukiyuki kebalya	Sh	Fr	Raw	Snack	2	1
Rosaceae	*Rubus pinnatus var. afrotropicus* (Gaertn.) Hylander, NA13	Nkenene	T	Fr	Raw	Snack	40	20.6
Fabaceae	*Voandzeia subterranea* (L.) Thouars, NA14	Mpande	H	Seeds	Boiling/ Frying	Sauce	3	1.5
Rubiaceae	*Cathium lactescens* Hiern., NA15	Akamwanyimwanyi	T	Fr	Sun drying	Snack	1	0.5
Solanaceae	*Solanum nigrum* Pax. Ex Dunal, NA16	Nsugga enzirugavu	H	Lvs/ S	Boiling/ Steaming/ Frying	Vegetable	71	36.6
Solanaceae	*Physalis angulata* L., NA17	Ntuntunu	H	Fr	Raw	Snack	45	23.2
Papilionaceae	*Abrus precatorius* L., NA18	Lusiiti	Cl	Lvs	Raw	Snack	1	0.5
Solanaceae	*Solanum lycopersicum* L. , NA19	Obunyanya bumalaaya	H	Fr	Boiling/Frying/Raw	Vegetable/ Sauce	17	8.8
Amaranthaceae	*Amaranthus dubius* Mart. ex Thell., NA 20	Doodo	H	Lvs/ S	Boiling/Steaming/Frying	Vegetable/ Sauce	112	57.7
Capparaceae	*Cleome gynandra* L., NA21	Jjobyo	H	Lvs/ S	Boiling/Steaming/Frying	Vegetable	84	43.2
Rubiaceae	*Vangueria apiculata* Aubrev. & Leandri,	Matugunda	T	Fr	Raw	Snack	41	21.1

Family	Species, Voucher no.	Local name	Growth Habit	Part used	Preparation method	Eaten as	Frequency	Percent
	NA22							
Solanaceae	*Solanum anguivii* Desf., NA23	Katunkuma	Sh	Fr	Raw/Boiling/Steaming/Frying/Sun drying	Vegetable/ Snack	90	46.4
Papilionaceae	*Phaseolus lunatus* L., NA24	Obuyindiyindi	Cl	Seeds	Boiling/ Frying	Sauce	19	9.8
Burseraceae	*Canarium schweifurthii* Engl., NA25	Empafu	T	Fr	Boiling	Snack	39	20.1
Lamiaceae	*Ocimum gratissimum* Forssk., NA26	Omujaaja	H	Lvs	Boiling	Condiment	22	11.3
Lauraceae	*Cinnamomum verum* J. Presl., NA27	Budalasiini	T	Lvs/ B	Boiling	Condiment	6	3.1
Annonaceae	*Annona muricata* L., NA28	Kitafeeri	T	Fr	Raw	Snack	9	4.6
Tricholomataceae	*Termitomyces microcarpus* (Berk.) Heim., NA29	Obutiko obubaala	H	Wh	Boiling	Sauce	35	18
Dioscoreaceae	*Dioscorea bulbifera var. anthropophagrum* Miers, NA30	Makobe	Cl	Bulbils	Boiling/ Steaming	Staple	17	8.8
Oxalidaceaea	*Averrhoa carambola* L., NA31	Mizabibu	T	Fr	Raw	Snack	1	0.5
Solanaceae	*Cyphomandra betacea* Walker, NA32	Binyaanya	T	Fr	Raw	Snack	6	3.1
Dioscoreaceae	*Dioscorea cayenensis* Lam., NA33	Balugu	Liana	T	Boiling/ Steaming	Staple	67	34.5
Palmae	*Elaeise guineense* Pax., NA34	Ekinazi	T	Fr	Raw	Snack	15	7.7
Dioscoreaceae	*Dioscorea minutiflora* (L.) W.T. Aiton, NA 35	Kaama	Cl	T	Boiling/ Steaming	Staple	31	16
Palmae	*Phoenix reclinata* Jacq., NA 36	Enkindu; Mpirinvuma	T	Fr	Raw	Snack	4	2.1
Asclepiadaceae	*Mondia whytie* Skeels, NA 37	Mulondo	H	R	Raw	Snack	30	15.5
Passifloraceae	*Passiflora quadrangularis,* NA 38	Wujju	Cl	Fr	Raw	Snack	5	2.6
Cucurbitaceae	*Luffa cylindrica* Cogn. M. Roem., NA, 39	Kyaangwe	Cl	Young Fr	Boiling/ Steaming/ Frying	Vegetable/ Sauce	3	1.5
Anacardiaceae	*Mangifera indica* L., NA 40	Miyembegy'omunsiko	T	Fr	Raw	Snack	79	40.7
Compositae	*Vernonia amygdalina* K. Schum, NA 41	Mululuza	T	Young Lvs	Boiling/ Steaming	Vegetable	10	5.1
Cucurbitaceae	*Sechium edule* (Jacq.) Sw., NA 42	Nsuusuti	Cl	Fr	Boiling/ Frying	Sauce	15	7.7
Dioscoreaceae	*Dioscorea alata* L., NA 43	Kisebe	Cl	Bulbils	Boiling/ Steaming	Staple	5	2.6
Fabaceae	*Cajanus cajan* (L.) Millsp., NA 44	Empinamuti/ Enkolimbo	H	Seeds	Boiling/ Frying	Sauce	1	0.5
Asteraceae	*Bidens pilosa* L. NA 45	Sere	H	Lvs	Steaming	Vegetable	3	1.5
Poaceae	*Bambusa vulgaris* Schrad. ex J.C. Wendl. NA46	Amalewa	H	Young S	Drying/ Boiling	Vegetables	2	1
Myrtaceae	*Syzygium cuminii* (L.) Skeels NA47	Jambula	T	Fr	Raw	Snack	10	5.1
Malvaceae	*Hibiscus sabdariffa*	Musaayi	H	Inflo-	Drying	Condiment	7	3.6

Family	Species, Voucher no.	Local name	Growth Habit	Part used	Preparation method	Eaten as	Frequency	Percent
	Baker, NA48			rescence				
Tricholomataceae	*Termitomyces eurrhizus* (R. Heim), NA 49	Obutundatunda	H	Wh	Boiling	Sauce	4	2.1
Zingiberaceae	*Cucurma longa* L., NA50	Ekinzaali ekiganda	Rh	Wh	Drying	Condiment	12	6.2
Commelinaceae	*Commelina benghalensis* L., NA51	Nnanda ennene	Creeper	Lvs	Steaming	Vegetable	5	2.6
Commelinaceae	*Commelina africana* L., NA52	Nnanda entono	Creeper	Lvs	Steaming	Vegetable	5	2.6
Amaranthaceae	*Amaranthus graecizans subsp. Sylvestris* (Villiers)Brenan, NA53	Mbooge entono	H	Lvs/ S	Boiling/ Steaming/ Frying	Vegetable/ Sauce	4	2.1
Apocynaceae	*Carissa edulis* Vahl, NA54	Ennyonza	T	Fr	Raw	Snack	10	5.1
Amaranthaceae	*Amaranthus lividus subsp. Polygonoides* Thell. ex Druce, NA55	Bbugga	H	Lvs/ S	Boiling/ Steaming/ Frying	Vegetable/ Sauce	7	3.6
Passifloraceae	*Passiflora edulis* Sims, NA56	Obutunda obuganda	Cl	Fr	Raw	Snack/ Juice	20	
Araceae	*Colocasia esculenta* (L.) Schott, NA57	Mayuni	H	T/Lvs	Boiling/ Steaming/ Frying	Staple/ Sauce	30	15.5
Dioscoreaceae	*Dioscorea cayenensis* Lam., NA58	Kyetutumula	Cl	T	Boiling/ Steaming	Staple	5	2.6
Solanaceae	*Solanum aethiopicum* L., NA59	Nakati	H	Lvs/ S	Steaming	Vegetable	25	13
Rutaceae	*Citrus limon* (L.) Burm. f., NA60	Niimu	T	Fr	Raw	Snack/ Juice	15	7.7
Dioscoreaceae	*Dioscorea prehensilis* Benth., NA61	Bukopa	H	T	Boiling/ Steaming	Staple	6	3.1
Arecaceae	*Cocos nucifera* L., NA62	Coco nut	T	Fr	Raw	Snack	10	5.1

Key
Growth habit: T = Tree, H = Herb, Cl = Climber, Sh = Shrub, Rh = Rhizome
Parts used: Lv = Leaves, S = Shoots, Fr = Fruits, T = Tuber, R = Roots, Wh = Whole, B = Bark

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