The Usefulness of Indigenous Plants and Vegetables in contemporary Society.

By

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Abstract

Indigenous Knowledge Systems (IKS) is tacit knowledge available to local people of any community which can be used in all sectors of life and development. This knowledge is passed from generation to generation through oral tradition, song, and dance. The invasion of traditional societies through colonization, modernization, and globalization has threatened the resilience of IKS and some literature argues that it is being driven into extinction. This paper argues that Indigenous knowledge Systems are undeniably resistant and resilient as evidenced by the continuous inevitable use of indigenous plant varieties in Africa and the rest of the world during outbreaks of pandemics like COVID-19 and even use in the day-to-day treatment of humans and domestic animals. Using individual telephone interviews, a teleconference focus group with rural and urban key informants from Chirumanzu District, Gokwe District, and Harare North low-density residential area, the paper discovered twenty-four (24) indigenous plant varieties, 5 non-indigenous plants, and 5 indigenous vegetables which people are using to improve health systems and strengthens the lungs during the COVID-19 pandemic. The same plant varieties have been used in everyday life even before the outbreak of the current pandemic, indicating their undeniable usefulness in the lives of people. The paper, therefore, recommends that more research should be done and literature should be written on the role of these different plant varieties so that the knowledge is kept safe and readily available for future generations. Documentation is very critical as a migratory measure against the extinction of the crucial role of indigenous knowledge systems

Keywords: *Resilience, Resistant, Indigenous Knowledge Systems, Pandemic*

1.1 Introduction and Background

The use of indigenous plant varieties in the treatment of humans and animals is a practice embedded in a broader body of knowledge known as the Indigenous Knowledge System (IKS) which was defined by scholars like Sithole (2014) as a community livelihood strategy used mainly in rural areas. Chiwanza et al (2013) defines it as a durable local knowledge that binds society. For scholars like Musasa (2019:164) it is “tacit knowledge which is inherent to the local people, which cannot be separated from the people's culture”. By virtue of being a way of life, it cannot be alienated from essential survival techniques in security, food production, food security, flora and fauna classification and conservation strategies, water management, environmental conservation strategies, climate predictions, and many more. This wide range of usage was also detailed by Sithole (2016) who gives a detailed account of how indigenous plant varieties are being used in the Chimanimani district of Zimbabwe to treat domestic animals, increase food security as they are used in pest control, and post-harvest food preservation, as well as treatment of humans and animals. This paper posits that these indigenous plant varieties are still active and they are playing a critical role in Zimbabwe’s rural and urban areas. People are using the indigenous plant varieties in the prevention of many diseases ranging from the current COVID-19 symptoms to common colds and flu since most clinics and hospitals are out of reach due to movement restrictions imposed by Governments to curb the spread of COVID -19. The paper made use of information provided by key informants from two districts: Chirumanzu district and Gokwe district both in the Midlands Province of Zimbabwe. The general aim was to find out to what extent indigenous plant varieties are still being used by people from different parts of the country to proffer solutions to contemporary quagmires of the 21st century for survival, to document the findings on how each traditional plant variety is being used. The information will therefore be of importance to young people and future generations who do not know the plant varieties in a bid to save human lives and promote sustainable development.

1.2Literature Review

The role of indigenous plant varieties has been undermined for centuries, particularly in literature in post-colonial states where such information from Indigenous Knowledge Systems (IKS) has been denigrated as backward, lacking scientific evidence, and undocumented. It has been swept aside and denigrated by colonialists as superstitious, denying it a chance to be full-fledged through practice and public recognition (Mapara 2009, Ngara and Mangizvo 2013 and Dombowski 2014). On the contrary, most traditional societies never stopped using traditional plant varieties because they are affordable and they are the ones they have known for generations and generations.

According to Aziz et al (2018) ethnoveterinary services is a term used in Pakistan to refer to the treatment of animals using indigenous plant varieties, and the role of such plants can never be undermined because there is a lot to study and discover in the benefit of animal husbandry. In the opinion of Luseba and Tshikhane (2013), more than 80% of people in Africa use traditional medicine which is mainly known by traditional herbalists who rarely disclose their knowledge freely because it is their source of livelihood. As a result, the knowledge is secretively revealed by word of mouth and risks extinction if not documented in literature across Africa (Musasa 2019). In concurrence is Iloka (2016) who posits that indigenous plants have been very critical for medicinal purposes to the extent that even the World Health Organization recognizes the critical role played by these plants and continuously encourages African countries to promote them. Western medicinal companies have always invested huge sums of money into botanical gardens where their traditional plants are grown and protected like the ones in Cameroon and the Democratic Republic of Congo. The challenge remains that there is very little documentation of the plant varieties and their uses, (Maroyi 2013), the reason why this paper went out to research and document these plant varieties. According to Mahomoodally (2013), 90% of the population in Ethiopia use herbal remedies for their primary healthcare. In addition, surveys carried out in developed countries like Germany and Canada tend to show that at least 70% of their population have tried complimentary or alternative medication, particularly traditional medicines. It is also noted (ibid) that Africa is blessed with enormous biodiversity resources, and it is estimated to contain between 40 and 45,000

species of plant with a potential for development and out of which 5,000 species are used medicinally.

Many places across the world continue to recognize the importance of traditional medicines because they are readily available in primary healthcare since modern medicines are either expensive or far away from the rural people thus traditional medicines are the first alternative for many people. Morales et al (2016) aver that this continued recognition of traditional medicine is critical because it leads to more research and realisation of the need to conserve the plant varieties to avoid their extinction for the benefit of future generations as has been witnessed in the Andean region of Ecuador. The importance of these traditional medicines was also emphasised by Moshi et al (2012) who discovered 49 indigenous plant species used in Kikuku Village in Muleba district North-West of Tanzania, used in the treatment of illnesses such as malaria, bacterial infections, epilepsy, gynecological problems and many more. With such important uses, the argument remains that more research and documentation should continue for easy accessibility by everyone. Chebili et al (2020) gives a detailed account of the way traditional medicine has evolved over the years as recognition and acceptance gather momentum in Kenya. The importance of governance issues was presented as important, thus suitable legislation should be formulated and enacted to protect the users and practitioners of traditional medicines. The trade of traditional medicines coming from developing countries esp,ecially in Africa is hindered by the absence of scientific proof, lack of clear dosage, and instructions, and the high level of secrecy and suspicion, leaving patients questioning their efficacy and safety. The scholars just like the others discussed before, recommend documentation of the activity and efficacy of medicinal plants as a viable route towards formalization as opposed to the informal oral traditions since the oral traditions are prone to loss or distortion as the original traditional medical knowledge is passed from one generation to the next. In addition, most of the custodians of this knowledge die before passing on the knowledge to the younger generations. Cousins and Witkowski (2015) acknowledge the importance unending role of indigenous plant varieties in a wide range of activities ranging from environmental conservation to food preservation and recommend that these uses are fully documented and extended to urban areas rather than rural areas only. Abukutsa-onyango (2015) recommends further research into

commercial seed production for indigenous vegetables since they are a potential income generation source and nutritional source for rural people across Africa.

2.0 Methodology

The paper used Qualitative data gathering methods through the use of individual telephone interviews, and teleconference focus groups with rural and urban key informants from Chirumanzu District, Gokwe District, and Glenlorne, a Harare North low-density residential area. All participants voluntarily participated in the research since they were all adults after the researcher had explained the purpose of the information sought.

3.0 Findings

Table 1: Indigenous Plants identified in Chirumanzu District

Herb/Plant Name	Uses	Application Method
Gavakava/Inhlaba/Aloe	General wounds, skin rashes, stomach aches -new castle in chickens. also used as a de-wormer Clears black spots and removes pimples, Heals wounds	Crush the thick leaves and apply them to the affected areas in case of wounds. Put the crushed leaves in water and give poultry
Mubvamaropa/Umvagazi/ Pterocarpus angolensis	Relieves stomach disorders, headaches, malaria	Crush the bark and drink the fluid.
Muchakata/Umkhuna/Pari nari curatellifolia	Cancerous wounds	Crush the leaves and apply them to the wounds
Muchecheni/Uphafa/Ziziph us mucronata,	Strengthens the lungs. Treats colds and flue	-Take the leaves and drink them as a tea Steam with the leaves in hot water

Mufandichimuka/Umafavuke/Myrothammus flabellifolia	-Strengthens the lungs Treats colds and flu	Drink as tea on a daily basis
Mukamba/Umkamba/Uhlene/Afzelia quanzensis	Wounds in animals	Crash the leaves and burn them apply to the affected area
Mukundanyoka/Zanthoxylum chalybeum/	Treats malaria, Blood pressure, diabetes, and toothaches	Extracted from the trunk, grind it to dry. Grind into powder and use. It will also be easy to conserve and use later
Munhengeni/Umthunduluka/Ximenia caffra	Wounds in people and animals	Crush the leaves and apply them directly to wounds. You can use a bandage to hold them for longer on the wound.
Mupangara/Ugagu/Dichrostachys cinerea,	Used to treat toothache	-Take the roots, Grind, and keep them in the mouth as long as possible. Place directly above or beside the affected tooth.
Mupfura/Umganu/Sclerocarya birrea	Treats Diarrhea, and headaches, and prevents malaria.	Drink as a tonic for weakness and fatigue. Soak water for some time and drink

The indigenous Plant varieties in Table 1 above were listed from the information provided by key informants in the Chirumanzu district. The respondents were very senior members above the age of 70 years. Two of the respondents indicated that they were traditional healers and would appreciate a token of appreciation presented as a

consultation fee to give the paper the required information. Great assistance was offered by these two elders since their knowledge was used to validate the information already gathered from other members of the district who were younger. In most cases, the information tallied well with what most families are practicing and what the traditional healers knew.

Table 2: Indigenous plants identified in Gokwe District

Plant name	Uses	Method
Murumanyama/Isihaqa/Cassia abbreviata Oliv	-Treats stomach aches, Headaches, colds, and flues	-Extract the bark, grind, and put it into cold water. Drink when necessary for pain. It is bitter but it works.
Murunjurunju/Muvengahonye/Amadumbutshenene /Cissus quadrangularis	Deworming in animals	Crush the leaves and administer them orally to all animals
Mupfuti/Itshabela/Brachystegia boehmii	Eyes in animals. If an animal gets snake venom in the eyes, apply.	Crush the leaves and apply the juice to the eyes. Ensure clear juice gets into the eyes without residue from the leaves
Mushumha/Umdlauzo/Diospyros mespiliformis.	Treats ringworms, skin diseases	Burn the extract and apply it to the affected areas
Mususu/Umangwe/Terminalia sericea	Reduces and cures stomach pains	Crash the leaves, allow them to soak, and drink
Mutarara/Umvalasangwana/ Gardenia spatufolia.	Cures toothache strengthens teeth and gums	Extract from the tree bark, dry, and grind into powder. When needed, put into water for 30 minutes and keep longer in the mouth before swallowing

Mutsambatsi/Intakubomvu/ Lannea edulis	Treats flu, stomach aches, Treats eye problems, cures wounds	For external use, grind and apply directly to the wounds. For stomach aches grind or chew and swallow the juice
Mutohwe/Umxakuxaku/ Thespesia	Ear aches	Chop and crush roots extracts and place nicely into the ear without tempering with the inside of the ear
Mutondo/Umtshonkwe	-Treats stomach aches	-Chop the bark, crush and mix with water. Drink after some time to relieve stomach aches.
Nhundugwa/Intume/Solanum incanum	-Treats wounds in animals -Treats cancerous wounds in humans	-Take the roots and the fruits. -Burn them and apply them to wounds.
Ndorani/Ntolwani/Elephantorrhiza elephantina	-Cures ngubhani -heals hypertension and stomach upsets	-Take the roots, grind them, and drink them as tea/juice. Put into porridge for kids and adults to reduce the wind.

In the Gokwe district elders were also consulted but 30 families were used to sharing their experiences with indigenous medicines as well as vegetables. The trees were also found to be similar to those found in the Chirumanzu district. Table 2 above only lists those trees which were different from the list obtained from Chirumanzu district interviews and discussions.

Table 3: Indigenous Plants Common in Urban and Rural Areas

Name	Uses	Method
Mutsine/Umhlabangubo/Bidens Pisola	Treats swelling of tissue due to fluid accumulation, supports brain functioning, cures ulcers, treats diabetes	Boil leaves and drink for its wide spectrum of benefits -Also use as a vegetable
Tsangamidzi/Gihlu/Zingiber officinale Roscoe	Heals stomach pains help reduce high blood pressure -Treats boating in ruminants	-Boil the powder in water and drink the liquid -Boil the roots and drink them as tea -Sprinkle the powder on your food when eating
Zumbani/Umsuzwane/Lippia javanica	-Prevents the onset of degenerative diseases such as cancer stroke and diabetes -Lowers pain such as abdominal pain, menstrual pain backache, and chest pain -Lowers swelling Treats fevers, especially in the case of malaria influenza, and measles -Treats coughs, colds, and bronchial diseases -Helps prevents lung infections	Drink tea daily. You can also steam up with the leaves in the hot water to relieve congested chest

	-Treats dysentery and diarrhea -is caffeine-free -Has vital minerals such as iron, copper, and zinc -Low in tannin, much lower than robots, and far much lower than regular tea - Boosts the immune system -Has aphrodisiac properties -Treats fertility problems -Its antibacterial, antiviral and helps treat eczema, acne, dermatitis, and loss of hair -Treats seizures and heart rhythm disturbances -Fights prostate cancer and prostate enlargement	

Source: Primary data

The information in Table 3 above was gathered from Harare North's low-density residential areas through interviews and observation. Families were observed picking up blackjack (mutsine) and Zumbani for immediate use in the prevention and alleviation of COVID-19 related symptoms. All families interviewed indicated that they owe their resistance and healing to Zumbani tea and steaming which they tended to practice two or three times daily especially during the level 3 and level 4 lockdown in Zimbabwe when clinics were not readily reachable. The plant varieties were also known and used by people in the two rural areas studied.

Other Non-Indigenous Trees

Table 4: Non-Indigenous Plant Varieties commonly used in Harare: Uses and Application Methods

NAME	USES	METHOD
Avocado Tree	Boosts blood supply, Cures Blood Pressure,	Boil the leaves and drink the liquid -Grate or grind the seed, dry, and soak in water to drink. You can drink tea on a daily basis -The fruit can be used as a mask for facial problems. -make a smooth cream and apply it to your face. You can add lemon juice for improved results
Eucalyptus/Gum Tree	-Treats flu and chest pains	-Boil the water and drink the juice. Also, steam up the leaves in hot water
Guava Tree	-Treats flu and chest problems	-Boil the leaves and drink the juice. Also, steam with leaves in hot water
Lemon Tree	-Boosts the pulse rate. -Treats flu and chest problems	-Chew or boil the leaves and drink the juice -Drink tea made from lemon juice to ease chest pains
Mango Tree	-Cures Boils, alleviates skin conditions, and cures chest conditions. Reduces and cancels asthma, treats diarrhea, boosts blood quantities,	-Wash leaves thoroughly and chew. Swallow the juice and leaves -Drink the juice of boiled mango leaves

	treats incontinence (quick discharge if urine)	
Moringa plant	-Cures all kinds of diseases, stimulates the appetite, reduces viral loads, boosts the immune system	Boil the plant extracts and drink the fluid. Add the powder into porridge for children and adults as well

Source: Primary data

Table 4 above, shows plant varieties that the people in urban areas are relying on as first options in case of illnesses. Elder people had better knowledge of the medicinal properties of these trees than the younger generation. This information was gathered from Harare North's low-density suburbs and the families indicated that they use the tree species on many occasions.

Table 5: Indigenous Vegetables Common in Gokwe and Chirumanzu District

Name	**Benefits**	**Suggested Preparation**
Nyevhe/Munyovhi/ Ulude/Cleome gynandra	high in certain nutrients including antioxidants, amino acids, vitamins, and minerals, like calcium, magnesium, iron, beta-carotene, and vitamin C.	- Very hard vegetables especially the overgrown ones -Boil for an hour or 2 depending on freshness. -Season as desired and serve with sadza or any other starch
Muboora/Boora/Ibhobola/ Cucurbita moschata	-Contains vitamins A and C -Increases fib in the system	-Very soft vegetable -Boil water first. Add the vegetables and continue cooking until soft.

	-reduces cholesterol levels which good for the heart	-Can add oil or peanut butter -Season and serve with sadza
Munyemba/ indumba/Vigna unguiculata	-Folic acid is good for the body vitamins such as provitamin A, folate, thiamin, riboflavin, and vitamin C, and minerals, such as calcium, phosphorus, and iron	- a bit hard so boil for longer -Remove excess water and season as desired. Can add peanut butter. Best with sadza.
Derere/Gusha/ Derere rechipudzi/ Isileleda/Abelmoschus esculentus	-Helps with digestion -a low cholesterol vegetable -Helps the body shed excess water weight	-Fry and use as a side dish with other starches for derere rechipudzi. -Boil with bicarbonate of soda when a thick creamy soup is required for both the leafy gusha and rechipudzi. Serve with Sadza
Mowa/Bowa/ imbuya/Amaranthus thunbergii,	-Very high in calcium, potassium, magnesium, copper, and zinc, - mowa leaves can be made into a tea to treat headaches, sore throat, diarrhoea, heavy menstruation, and internal ulcers among other ailments.	-Very soft and takes about 30 minutes to cook. -Cook in boiling water. -Remove excess water and season to taste -Serve with sadza

Source: Primary Data

The vegetables were gathered from both Gokwe and Chirumanzu districts. Residents from Harare North also indicated their knowledge and love for the same vegetables due to their health benefits. The younger generation from all three areas of research did not show any interest in these vegetables as they said they are not aware of them.

4. Discussion of findings

The findings of the study include a wide range of indigenous plants used for medicinal purposes and vegetables with immense health benefits to people. The twenty-four (24) indigenous plants, 5 non-indigenous plants, and five (5) indigenous vegetables were identified as critical for health and food provision for the rural and urban people. While the plant species listed in Tables 1-3 are curative, the vegetables in table 5 are relish with nutritional benefits, full of essential nutrients required for a balanced diet like iron, copper, zinc, and many more. Table 4 presents 5 other non-indigenous plant species which were found to be critical by the study and the people in urban areas are largely making use of them. Along this line it can be observed that it is possible to promote both indigenous and non-indigenous species for the benefit of human and animal health since they are already being utilized. This knowledge will help in the provision of readily available plants in the proximity of both urban and rural areas.

Indigenous plant varieties have been useful in Chirumanzu and Gokwe districts since the pre-colonial era and they continue to be useful in day-to-day activities of the local people. The key informants indicated that every family in the rural areas is aware of some traditional medicines and vegetables which work better for them. Most of the prominent trees like Murumanyama (table 2), Mubvamaropa and Mukamba (table 1) are very common across families in the two districts. This has led to traditional leaders placing bans on the cutting down of these trees to protect them from continuous deforestation which may lead to extinction. The use of these trees if promoted and becomes shared knowledge, is very critical for soil conservation and reduction of land degradation. To preserve prominent trees for medicinal purposes for people and domestic animals, traditional leaders will be contributing immensely to environmental conservation strategies through indigenous knowledge systems, the reason why this paper believes the country should promote research and documentation of different uses of indigenous

plant species in medicine. Gavakava (Table 1) for example, has been used by local people in Chirumanzu and Gokwe districts to treat diseases in poultry, and the information continues to be passed on from generation to generation. However, the information is not readily available and may require the expertise of elder members of the community, thus in some cases, a token of appreciation is required since it is their source of livelihood. In addition, the elder members of these communities who are the main custodians of this essential knowledge may pass on without sharing the knowledge with youngsters, in line with the worries of Musasa (2019). If these plants and their benefits continue to be researched and documented, then it will be easier for people of all ages and origins to easily access them for survival and promotion of health.

People in urban areas were also found to know the benefits of indigenous plant varieties useful in the prevention and treatment of various types of diseases. During the COVID-19 pandemic in 2021, the study interviewed and witnessed several families in the Northern low-density suburbs of Harare harvesting mutsine, zumbani (table 3), and some non-indigenous tree species for the prevention and treatment of the disease. Tsangamidzi was also topping the list of the commonly used herbs in Harare. The families interviewed by this paper indicated that ginger is a must in all meals, especially as a tonic for throat infections. Even young people in their twenties and thirties were found to be aware of the benefits of Tsangamidzi (table 3). Most flu-like symptoms were prevented by steaming with the leaves from Mango, guava, eucalyptus (table 4), and many more placed in hot water. This clearly shows that traditional medicine is no longer the domain of rural people only but urban people are also included. If documentation, sensitization, and awareness increase, more people will benefit from the indigenous plant varieties.

The two districts used by the study (Gokwe and Chirumanzu) contained similar indigenous plants with common names and uses, although some differences occurred here and there. Even in the vegetable (Table 5), some varieties like derere were found to be different. In the Gokwe district, the Derere/Gusha variety used is a high-growing shrub producing very fine green soup taken well as a relish with sadza or alone as a soup. The variety found in the Chirumanzu district was a bit flat, exhibiting crawling plant characteristics and the key informants indicated that the gusha variety is still used in the

same way for relish. However, derere rechipodzi is becoming more popular since it can be grown by farmers for relish and cash. Further studies are therefore required to establish whether the traditional variety of gusha or derere cannot be planted in fields for large-scale production and commercial purposes, to be cooked fresh or dried for later use during times of scarcity. Nyevhe/Munyovhi/ varied slightly in the way the vegetable was pronounced but all referred to the same indigenous vegetable, the same as muboora (boora), mutsine/musine, and mowa (bowa). The same vegetables were also discussed by scholars like Mushita (2020), Maroyi (2011), and Teya (2016) as very valuable sources of nutrients which are being shunned by Zimbabweans, thus raising the need for further research, documentation, and promotion. In Harare urban, the families interviewed all had knowledge of these healthy vegetables and indicated that they often buy them from supermarkets in their fresh or dried form but tended to be expensive. The indication was also that due to covid-19, travel bans limited their trips to the rural areas where they normally fetch these vegetables when they visit families.

5.0 Conclusions and Recommendations

The paper concludes that indigenous plant varieties are very crucial in mitigating the effects of contemporary diseases in human and animal life through treatment, prevention of diseases as well as health benefits that make human bodies more resistant to many diseases. While there is a proliferation of health quagmires in the 21st century, indigenous plant varieties remain useful despite current challenges like modernization, urbanization, and deforestation. Modern medicine is failing in areas like the treatment of cancerous diseases, pandemics like COVID-19, and many more. Given a chance for research processing, packaging, and labeling, indigenous plant varieties will complement the shortcomings of modern medicine. The major outstanding challenge is the lack of organized and agreed methods of information storage and dissemination.

The paper makes the following recommendations:

- More research should be carried out on the indigenous plant species and the diseases they combat so that it becomes scientifically proven and well accepted by all.
- Documentation of the types, medicinal properties, health benefits, and methods of administering the traditional medicines and vegetables should gather momentum among researchers in different African countries.
- The traditional vegetables should be grown on a large scale, dried, and packaged for use during times of scarcity since most of them are seasonal, with a lot of awareness and sensitization of the whole population on the benefits.

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