

Perceptions and Use of Indigenous Leafy Vegetables (ILVs) for Nutritional Value: A Case Study in Mantusini Community, Eastern Cape Province, South Africa

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Abstract. Mantusini community is located in Port St. John's Local Municipality in the Eastern Cape Province in South Africa. Like many other rural communities in this province, Mantusini has a diversity of natural resources that include indigenous leafy vegetables (ILVs) and crops. ILVs that grow in Mantusini include the following: umhlabangubo (*Bidens pilosa*), unomdlomboyi (*Amaranthus hybridus*), imbilikicane (*Chino podium albunse*) and umsobo (*Solunam nigram*). Despite the availability of these vegetables, this community is characterized by food insecurity that is evident in high levels of poverty get general statistics that supports the above claim. The purpose of this paper was to explore perceptions of Mantusini community members regarding the use of indigenous leafy vegetables (ILVs) to increase food security for poverty alleviation. A questionnaire, in-depth interviews and focus group discussions were research instruments used to collect data. The Statistical Package in Social Sciences (SPSS) was used for data analysis. Findings based on this study indicated that different types of ILVs are available in this community and they are important for cultural, medicinal and nutritional values. For example, 77% of respondents indicated that ILVs are important. Findings further show that contrary to beliefs that youth show a negative attitude towards the use of ILVs, at Mantusini they are interested in their use and in many instances initiate their preparation and consumption in households. Based on these findings we recommend that propagation of ILVs in home and school gardens be promoted to raise awareness among young children.

Keywords: Indigenous leafy vegetables (ILVs), perceptions, cultural, medicinal, nutritional value

1. Introduction and Literature Review

Different views have been advanced regarding the origins of ILVs in South Africa. For example, Husselman and Sizane (2006) have pointed out that most of the species currently used are originally from the Americas, Europe, Asia and North Africa. Many of these plants are further said to be spread across different communities in the world and growing as weeds. However, the use of leafy vegetables in Southern Africa is as old as the history of humankind. The Khoisanoid, who are the indigenous people in Southern Africa, relied heavily on gathering indigenous leafy vegetables and crops from the wild for their survival (Fox and Norwood Young, 1982). The Bantu-speaking ethnic groups who migrated from West Africa moved across to Central, East and settled in Southern Africa about 2,000 years ago also collected leafy vegetables from the wild for their staple food. Husselman and Sizane (2006) have also indicated that it's rather unclear as to when and how the ILVs were brought to South Africa. However, by the 19th Century most of the exotic species were considered part of indigenous diets in African rural communities. More than 30 species of these plants are consumed in the Eastern Cape Province.

1.1. Use of ILVs to Alleviate the Problem of Malnutrition and Maintain Good Health in South Africa

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In South Africa, most provinces are still challenged by high levels of poverty, especially among rural communities and in some areas the poverty level is as high as 78.2% (Vorster et al. 2007). The rate of vitamin A deficiency is also high in the country. Sixty four percent of 1-9-year old children are vitamin A-deficient, 28% anaemic, 13% have poor iron levels and 45% had low zinc levels (Faber et al., 2011). About 50% of the adult population in South Africa is obese with malnutrition being the predominant contributor as many people tend to consume processed foods that are high in saturated fats, sugar and salt (Faber et al., 2011). On the other hand, consumption of vegetables is generally associated with reduced risk of cardiovascular diseases, cancer, stroke and reduced mortality (He et al., 2006). It is also worth mentioning that the deficiency of one micronutrient can exacerbate the deficiency of another, thus there is likely to be concomitant deficiencies of more than one micronutrient in many of South Africa's' undernourished children. These problems can be prevented by including ILVs like 'umifino umtyuthu', 'cetshana' or 'ityabontyi' (*Amaranthus cruentus*, *Cucurbita pepo*, and *Citrillus lanatus*) in the diet as natural and inexpensive sources of vitamin A, iron and zinc. There is therefore the dire need to encourage sufficient production, availability and consumption of ILVs in efforts to alleviate the problem of malnutrition, obesity, food insecurity and poverty in the country.

2. Description of the Research Design and Methodology

In this section we provide the meaning of a research design, research approach, the sampling method, data collection tools, justification for the choice of the research methods and ethical considerations.

A research design is 'a plan or blueprint' for how the researcher intends to conduct the study (Mouton, 2001). According to Cohen, Manion & Morrison (2007) research methodology shows what can be achieved and how it can be achieved. They also content that the notion of 'fitness for purpose' becomes paramount when the researcher has to decide on a choice of research design and approach. Creswell (2009) defines a mixed method research as a procedure for collecting, analyzing data and mixing both qualitative and quantitative approaches. The mixed method approach is flexible in that it uses multiple methods, contextual interpretations and the best strategies to address research questions about real-life problems. In addition, the selection is about beliefs/assumptions regarding the nature of reality and humanity (ontology); the theory of knowledge that informs the research (epistemology); whether the enquiry is value free or value laden (axiology); how that knowledge will be gained (methodology); and how the report will be written (rhetorical) (Goduka, 2012).

For the purpose of this study, a mixed method approach was used (Creswell, 2009). This consisted of quantitative and qualitative research approaches. The quantitative approach included questionnaire; the qualitative included in-depth interviews and focus group discussions for obtaining the validity and reliability of the study. The qualitative approach was also used to explain the ontological and epistemological assumptions which content that no reality exists on its own, rather it is created within a context in relation with others. The sample was comprised of 35 households from the Mantusini village. A non-probability/purposeful sampling technique was used. Purposive sampling, also known as judgmental, selective or subjective sampling, reflects a group of sampling techniques that rely on the judgment of the researcher when it comes to selecting the units that are to be studied. Given that the present study is a case study, we deliberately chose to focus on only a smaller section of the Mantusini village rather than to have a sample that was representative of the wider population.

A key concern in social research is the question of ethics, i.e. a requirement that the researcher treats participants with dignity and respect in one's pursuit of new knowledge. Cohen et al (2007) maintain that ethical issues arise from the nature of the research problem, the research context, and the protection of participants and the data. Ethical dilemmas facing researchers could be any of the following factors: privacy; anonymity; confidentiality; betrayal and deception. After gaining access to the Mantusini village, questionnaires were distributed to 35 participants involved in the study. Therefore, there was neither coercion nor persuasion used to force participants; they all completed the questionnaire, in-depth interviews and focus group discussion on their own volition. It was also clearly stated on the form that "no personal identification" was required to complete the questionnaire. In keeping with the principle of confidentiality,

during and after data analysis questionnaires were kept in a safe place and findings were shared with those who participated in the study.

3. Data analysis and Findings

For data analysis, the Statistical Package for Social Sciences (SPSS) was run for quantitative and qualitative data. Data from in-depth interviews was analyzed using the n-vivo 9 statistical software.

4. Findings and Discussion

4.1. Types of ILV's Found in Mantusini

As indicated in Fig. 1, the ILVs commonly found in Mantusini include, *umhlabangubo* (*Bidens pilosa*), *unomdlomboyi* (*Amaranthus hybridus*), *imbilicicane* (*Chino podium albunse*) and *umsobo* (*Solunam nigram*), *unomkhovane* and *Irwabe*.

4.1.1. Umhlabangubo (*Bidens pilosa*)

It is usually identified by its three or five leaflets that are green, a green stem which sometimes has brown stripes, flowers with white petals and fruits and seeds that are blackish and have what some people call 'little teeth' as they stick to clothes and fur.

4.1.2. Unomdlomboyi/Imbuya (*Amaranthus hybridus*)

This plant is said to be the most popular of all the identified plants not only in Mantusini but in the rest of the Eastern Cape. It is also known as *utyuthu* or *isheke* in Isizulu. It has green to purple leaves, with a green, brownish or purplish stem. Its flowers are light green, pink, white or purple while the seeds are black or brown and tiny.

4.1.3. Imbilicicane (*Chino podium albunse*)

Imbilicicane is also known as *imbilicicane* or *isijabane* in Isizulu. It is usually identified by dark green or whitish green leaves, a green to brownish stem, small pale green flowers as well as small and black fruits/seeds.

4.1.4. Umsobosobo (*Solunam nigram*)

This plant is also known as *isihlalakuhle*, *umaguqa* or *umgwaba* in Isizulu. It is usually found in the veld and identified by dark green leaves on both sides, flowers with white petals and its round, dark purple berries.

4.2. Sources of ILVs in Mantusini

Based on the findings, leafy vegetables found in Mantusini grow wild in the gardens, along the river banks and in the fields. This is indicated by the 77 % of respondents who indicated that they obtain leafy vegetables from the gardens. Some 18.18% of respondents pointed out that they obtain leafy vegetables from the field while another 4.54% said that they get them near the rivers. These findings suggest that gardens may be appropriate for propagating ILVs.

4.3. The State of Household ILVs Usage in the Mantusini Community

Eighty eight percent of households surveyed indicated that they make use of the ILVs mentioned above while only 12% indicated that they do not use them. This high percentage of households using ILVs is in line with arguments by Rodlack (2011) who has argued that traditional dishes are compatible in use with starchy staples and represent a cheap but quality nutrition to poor families both in urban and rural areas where malnutrition is widespread. Husselman and Sizane (2006) have noted that the consumption of ILVs could make a positive contribution to world food production because they adapt easily to harsh or difficult environments. Also less labor, water and fertilizer are required for growing them compared with other crops, and they are highly resistant to pathogens thus requiring fewer chemicals and pesticides.

This makes them suitable and advantageous for people living in areas with large households and a high rate of dependency like Mantusini. Findings also indicated that 68% of the households have food available some of the times; 12% reported that it is scarce; 8% were not sure and only 12% said that food is abundant

in the household. ILVs can therefore serve to augment a shortage of food in families where there is a shortage, and to alleviate nutrient deficiencies by increasing nutrient supplies (Karva 2008). Husselman and Sizane (2006) also add that ILVs are inexpensive and easy to cook and their production can compensate for low vegetable supply during the off-season, potentially helping to alleviate nutrition deficiency during this period.

4.4. Medicinal Value of Selected ILVs

Some 4.34% households indicated that ILVs are important sources of medicines. It was stated that the infusion from the leaves and roots of *Umhlabangulo* was used for healing stomach pains while its flowers could be used in dealing with prolonged diarrhea. Respondents indicated that *Imbilikane* was important for strengthening the immune system and enhancing the functioning of the stomach. Others reported it being used by mothers in dusting genitals of babies as a substitute of some sort to baby powder. Others reported that some groups such as the Venda use it for controlling excessive menstruation and enhancing conception. In the case of *Umsobosobo* unripe berries and leaves are crushed and the paste is used in curing ring worms, wounds and ulcers.

4.5. Perceptions of People on the Role of ILVs

Although there has been realization that ILVs have suffered the brunt of a negative label in many communities, the study revealed that there is enough evidence pointing to the centrality of ILVs in people's way of life. As indicated in figure 4 below, 76% of the households surveyed indicated that ILVs play a very important role in their lives. The important point to note here is that they underlined the importance of the ILVs to the community as whole and not just an individual.

4.6. Youth-Elderly Participation in Initiating ILV Consumption

In the study findings indicated that the elderly in many households still play a leading role in ensuring that ILVs form part of the daily dishes. This is shown by the 67% respondents where parents are said to be initiators of the consumption of ILVs in the households. The 33% indicating that youths also do initiate the consumption of ILVs in households is also encouraging considering the accusations that youth are shunning traditional dishes in favor of exotic ones. The lower percentage of households where youths initiates the consumption of ILVs justifies the arguments by Vorster et al. (2007) who have noted that the general labeling ILV's as "weeds" and the knowledge associated with it as old fashion has led to the food being seen as low status food consumed by the poor, thus most children do not want to eat ILVs.

5. Conclusion

In this study we have noted the different types of ILVs and the value that they have in the livelihoods of people in Mantusini. We have noted that despite some notable decline in the usages of ILVs with the advent of modernity, they are fast returning to the fore of identities informing the way of life in rural communities. ILVs represent a valuable source of nutrition and medicines and match other starchy exotic foods. The leafy vegetables we identified in this study are largely obtained by propagation in gardens although some people still obtain them from near the rivers and the veld. The sharing of ILVs in Mantusini is also an important part of the moral values underpinning interdependence that has cushioned rural communities from nutritional deficiencies and general food insecurity. The gardens become a source of communal convergence where everyone gets something regardless of whether they own a garden or not.

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