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Rural Household's Utilization of the Indigenous Vegetables

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Abstract

The indigenous vegetables (IV) are nature's copious blessings to the rural community. These vegetables can thrive and remain productive under varying climatic conditions. The rural community recognizes the value of IV, not only for human consumption, but for other valuable purposes as well. The aim of this study is to explore the rural household utilization of IV. The descriptive survey method, using validated structured interview, was employed to gather data from the randomly selected 60 respondents from the rural barangays of Municipality of Ibajay, Aklan, Philippines from January to September 2021. The interview results revealed that pako-pako (*Diplazuim esculetum*) was the most frequently consumed vegetable in the rural households. The vegetables were oftentimes harvested near the riverbanks, and were available throughout the season of the year. The leaves and stalks of the vegetables were recurrently consumed as food except for nipa (*nypa fruiticans*), in which only the core part is used as food. The results further disclosed that 28 or 46.47% of the respondents consumed IV in their households 16-20 times a month. The vegetables soup with fish or meat *(tinuea)* and vegetables in coconut milk (*linabug*)were the common dishes prepared from IV. Aside from the culinary uses, the rural household also utilized indigenous vegetables as feed for animals and for traditional medicinal purposes. Moreover, the IV were found beneficial to the households, especially during times of disaster and calamities, where food is scarce, especially during Covid 19 pandemic. Further studies are needed to establish the biochemical components of indigenous vegetables. Value adding the indigenous vegetables through product development was also suggested.

Key Words*: Rural Households, Indigenous Vegetables, Uses of Indigenous Vegetables*

Introduction

Indigenous food resources constitute the richness of the rural community, as its bedrock (Durst and Bayasgalanbat, 2014). Long before, the presence of the people in certain places signifies food security, which can be associated with the indigenous plants available in the area. Indigenous Vegetables (IV) have always played a significant part in the local community. The people in the rural area regarded the value the of indigenous food plants in their diet and food security. With the climate uncertainty, IV were proven to be resilient and less damaging to the environment. This are recognized to preserve the cultural heritage of the local community.

The province of Aklan in Western Visayas covers a total land area of 1,821.42 square kilometers. The province is rich in natural resources where it has maintained 709 hectares of virgin forest, conducive for indigenous plants like vegetable to grow. Ibajay is one of the municipalities in the province that add up to 8.72 % of the total land area of Aklan (PSA, 2020) that covers vast areas suited for the IV to grow abundantly. Households in the rural areas use that natural resource in their daily lives.

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The support of major agencies to IV use is relatively insufficient, as the focus of the government are on the major crop like rice , corn and coconut. The support on IV utilization is not well-documented.

Thus, there is a need to conduct scientific investigation, specifically about the utilization of IV in rural households to generate advance knowledge on how to maximize the use of IV for the betterment of the community.

Interestingly, the study was inspired by the sustainable development goal advanced by the United Nation on Zero Hunger, No Poverty; as well as Good Health and Well Being. Likewise, this study supports the Harmonized Regional R&D Agenda (HRRDA) 2018-2022, that encourages research activities that promote the building of efficient systems of knowledge creation and technology generation. These systems aimed to create a heathier, safer, and happier environment for every member of society regardless, of gender, age, physical capability, and social status.

Hence, this study will explore the potential utilization of IV in order to generate information that will lead to the conduct activities that will bring inclusive growth and development in the community.

Objective of the study

Generally, the study is designed to identify the utilization of IV in the rural households.

Specifically, the study aimed to:

1. Find out the top ten commonly consumed indigenous vegetables in the household.

2. Identify the profile of the of the IV consumed by the household in terms of:
1.1 local names
1.2 habitat
1.3 harvest season
1.4 part or parts of plant utilized as food

3. Find out the frequency of IV consumption by the household.
4. Identify the traditional dishes prepared from IV.
5. Find out the other local uses of IV.
6. Determine the benefits of IV in the local community.

METHODOLOGY

Research Design

Descriptive research method was used in this study since the main purpose of the inquiry was to find the household's utilization of indigenous vegetables.

Locale of the Study

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The survey and documentation on the availability and household consumption of IV was conducted in the municipality of Ibajay,province of Aklan, Philippines. The data were gathered from the Ten (10) selected barangays of the municipality namely: Agbago, Aparicio, Aslum, Batuan, Capilijan, Colongcolong, Laguinbanua, Maloco, Monlaque, Naile, Rizal and San Jose where IVs were abundant.

Sampling Technique

In the survey and documentation of the existing IV, the study employed multi-stage sampling techniques. First, the different barangays of Ibajay were identified; second, 10 barangays were selected through random technique; and third, purposive sampling technique was employed in the selection of the actual respondents.

Ethical Consideration

To ensure that research ethics were observed, a proper permit to conduct the study was secured, while informed consent from the respondents was also sought. Proper health protocol required by IATF during 19 was strictly observed. and with the respondents, to protect the community from the spread of covid 19.

Respondents of the Study

Respondents of the study were 60 residents of the Municipality of Ibajay. The record reveals that majority of the residents were in the age bracket of 42 to 59 years old, 24 or 40% and engaged in farming, 18 or 30%. It can also be gleaned that mostly were female, at 43 or 71.67%.

Sampling Procedure

The participants were selected through a multi-stage sampling technique. First, the barangays that composed the municipality of Ibajay were identified. Next, ten barangays were selected through random sampling. Then, the actual respondents were selected through purposive sampling.

Data Gathering Instruments

The unstructured interview schedule was used in gathering the data. The instrument was validated by the panel of experts, before it was utilized to gather the data needed.

The interview guide was translated to the "*Aklanon*" dialect, to ensure the common understanding between the researcher and the participants. This is to guarantee that the data to be collected are reliable and accurate.

Data Gathering Procedure

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Permit to conduct the study was first secured . The health protocol required by the IATF on protection against covid 19 was strictly followed. The data were personally gathered by the researcher with the aid of the barangay official and volunteer local residents. They assisted during the conduct of the interview and provided clarifications and additional information, when the questions arose during the interview. The data were gathered from January to September 2021.

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Statistical Analysis

Descriptive statistics such as frequency counts, percentage, and mean were used in this study to analyze the data.

RESULTS

Indigenous Vegetables Utilized in the Rural Households

The findings revealed the top 10 frequently consumed IV in the rural household . The respondents claimed that *pako-pako (Diplazium esculentum)* was first in the rank; rank 2 was abaeong (*Colocasia esculenta (L.) Schott);* rank 3, was *lumbay or bago (Gnetum gnemon Linn*); rank 4 was, *Lupo-lupo (Alternanthera sessilis (L.)*; rank 5 was *nipa (Nypa fruiticans);* rank 6 was *kulitis (*Amaranthus *spinosus*); rank 7 was *las pinakas (Talinum fruticosum (L.);* ranked 8 was *kadyapa (amaranthus cruentus);* rank 9 was *hagukhok (Benincasa hispida)*; and rank 10 was *palya (Momordica charantia L.)*The findings are comparable to the findings of Madisa and Tshamekang (2019) on the conservation and utilization of indigenous vegetables in Botswana which emphasized that the indigenous vegetables were widely harvested and consumed especially by the local villagers.

Table 1. Rank of Indigenous Vegetables Based on the Frequency of Household Utilization

Local Name	Scientific Name	Frequency	Rank
Pako-Pako	Diplazium esculentum	48	1
Abaeong	*(*Colocasia esculenta (L.) Schott*),*	44	2
Lumbay(Bago)	Gnetum gnemon Linn	43	3
Lupo-lupo	Alternanthera sessilis (L.)	38	4
Nipa	Nypa fruiticans	36	5
Kulitis	Amaranthus *spinosus*	35	6
Las pinakas	Talinum fruticosum (L.)	34	7
Kadyapa	(amaranthus cruentus)	34	8
Hagukhok	Benincasa hispida	28	9
Palya	Momordica charantia L.	26	10

Habitat or Collection Site of the INDIGENOUS VEGETABLES

The findings revealed that the common habitat of IV were idle lands, rindigenous vegetableser banks, and forest areas. The *pako-pako* were collected from the river banks, mountains, and coconut farms. Meanwhile, the *amboeong* can be harvested from the dikes of rice fields, from the forest, idle lands, and swampy areas. Likewise, *lumbay* can be harvested in the upland and roadside areas, while *lupo-lupo* were common in corn fields, rice fields, backyards and roadsides. Furthermore, nipa can be found along river

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Indigenous Vegetables	Habitat/site of collections
Pako-Pako	Rindigenous vegetableser banks, uplands, under coconut trees
Abaeong	field margins, forested areas, idle lands, or bedside bodies of water, swampy areas
Lumbay(Bago)	Upland areas, road side,
Lupo-Lupo	Corn fields, rice fields, back yards, road side
Nipa	Rindigenous vegetableser bank, swampy areas, fish ponds margin
Kulitis	Corn fields, rice fields, back yards, road side, garden
Talinum	Wild, Corn fields,rice fields,back yards,road side, garden
Kadyapa	Corn fields,rice fields,back yards,road side,garden
Hagukhok	Rindigenous vegetableser banks,road side,wild
Palya	Garden,back yard

banks, swampy areas and fishpond margins. Moreover, *kulitis, kadyapa*, *hagukhok*, and *palya* were common in the fields, wilds, backyards, garden, roadside, and river banks.

The results explained that IV are suitable to grow in any type of soil and topography. This means that IV can be cultivated in the household's backyard to increase the production.

Harvest Season

The results revealed the harvest season of Indigenous Vegetables in the rural areas. The data reflect that almost all frequently consumed IV were available all year round, except *palya* which in season during the month of March to June. The findings are similar to the study of Madisa and Tshamekang (2019) on the conservation and utilization of indigenous vegetables in Botswana which stated that variety of indigenous vegetables grow in the wild despites of the type of season.

Parts of Indigenous Vegetables Used as Food

The findings disclosed the parts of IV consumed as food by the rural households. It can be noticed that young leaves of *pako-pako, abaeong, lumbay, lupo-lupo, kulitis, las pinakas, kadyapa*, and *palya* were popular among the respondents. Likewise, *abaeong* a young petioles and runners are also among the favorites of the respondents. *Nipa* core was also consumed as food and usually serve during special occasion. *Pako-pako* rhizomes and stalks of *kadyapa* and are also cooked as food for household consumption. On the other hand, both fruits and leaves of *palya* were consumed as food by the rural households.The results implied that IV were promising plants because large portion of it parts are edible.

Frequency of Indigenous Vegetables Consumption Per Month

Table 5 reveals the frequency of Indigenous Vegetables consumption per month. The data shows that almost half of the participants, 47%claimed that they consumed Indigenous Vegetables 1-5 times a month

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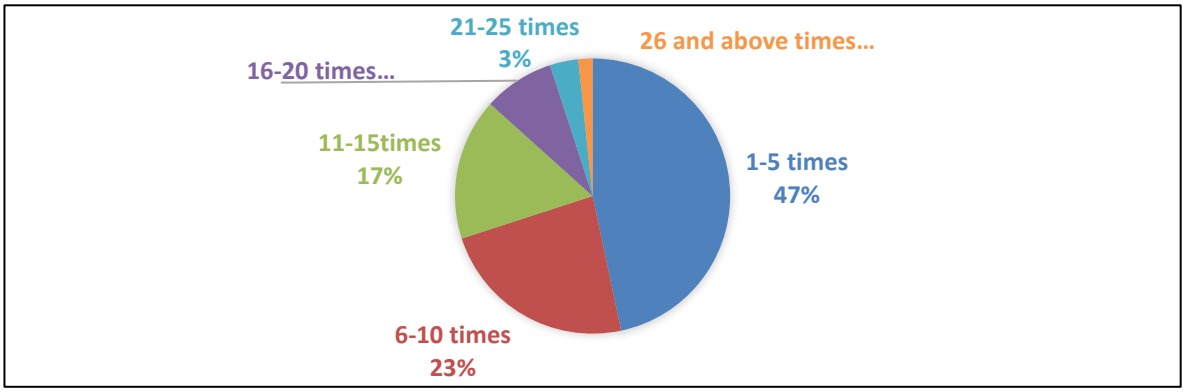
while 23% disclosed 6-10, 17% claimed that they consumed Indigenous Vegetables 11-15 times and the rest consumed 16-20 times, 21-25 times and 26 or more a month respect indigenous vegetables.

Figure 3. Frequency of Indigenous Vegetables Consumption Per Month



Local Dishes Prepared from Indigenous Vegetables

The local dishes prepared from IV which were common on the dining table of the local households .The vegetables were prepared as vegetable soup with fish . Similarly, popular dishes that were prepared from *pako-pako* were salad and *pako-pako* with coconut milk. The *ambuoeng* was also prepared as *paksiw, ginataan*, at *adobo*. The *lumbay* or *bago* was commonly cooked as *tinola* with *isda* and *ginataang isda na may bago*. Moreover, common local dishes from *lupo-lupo, kulitis, las pinakas, hagukhok, and kadyapa* were *ginisang monggo, tinola* with isda, at *nilagang karne*. On the other hand, nipa core was commonly prepared as *linabog* (an *Aklanon* dish in which the nipa core is cooked in fresh coconut milk).

The varying local dishes that can be prepared through Indigenous Vegetables implied that the plants can be support the municipal culinary tourism promotion.

Table 3. Dishes prepared from Indigenous Vegetables

Local Name	Tradtional Dishes Prepared from Indigenous Vegetables
Pako-Pako	Pako Salad Sinabawang Isda with Pako Ginatatang Pako
Abaeong	Paksiw na abaeong Ginataang Abaeong Adodong Takway
Lumbay(Bago)	Tinolang Isda na may Bago Ginataang Isda na may Bago
Lupo-Lupo	Ginisang Monggo with Lupo-Lupo Tinolang Isda with Lupo-Lupo Nilagang Karne with Lupo-Lupo
Nipa	Linabog/Ginataang Ubod it Nipa
Kulitis	Insaladang Kulitis Tinolang Isda na may Kulitis Ginisang Monggo na may Kulitis
Talinum	Tinolang isda na may Talinum Ginisang Talinum

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	Monggo na may Talinum
Kadyapa	Tinolang Isda na may Kadyapa Tinolang Karne na may Kadyapa Ginisang monggo na may Kadyapa
Hagukhok	Tinolang Isda na ay Hagukhok Hagukhok na may Katuray(natindigenous vegetablese shrimp)
Palya	Ensaladang Palya Ginisang Palya Palya with Monggo Bulanglang

Other Local Uses of Indigenous Vegetables

The results indicated other local uses of Indigenous Vegetables as revealed by the respondents. Indigenous vegetables were commonly used for animal feeds. It can be noticed also, *pako-pako kulitis, talinum,* and *kadyapa* were used to beautify the garden of the local households. Likewise, *aboeong* was used as food to relieve "hang-over", while *palya* was used as medicine to treat fresh wounds and skin diseases.

Table 7. Other Local Uses of Indigenous Vegetables

Local Name	Other uses
Pako-Pako	Cover crop to prevent erosion Garden plant for aesthetic Gindigenous vegetablesen to the nursing mother as good source of nutrients
Abaeong	Eaten to relieve hang over Source of vitamins and minerals
Lumbay(Bago)	Gindigenous vegetablesen to the woman after gindigenous vegetablesing birth Animal feed
Lupo-Lupo	Eaten to improve the milk of the mother
Nipa	Medicine to prevent amenorrhea
Kulitis	Animal feeds Source of iron
Talinum	Animal feed
Kadyapa	Animal feed
Hagukhok	Animal feed
Palya	medicine

Benefits of Indigenous Vegetables in the Local Community

The data accounted the benefit of Indigenous Vegetables to the local community. The respondents emphasized that Indigenous Vegetables contribute to the food security in the household. According to their report, Indigenous Vegetables saved their households from hunger during the time of pandemic. The respondents mentioned that:

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"During the lockdown due to covid 19, our movement was very limited, we cannot go to the market to buy food. We are grateful that Indigenous Vegetables are available on the grounds to meet our daily needs for nutritious vegetables".

"Indigenous vegetables were a big help in our household. At any time, we have an immediate source of organic vegetables, free from chemicals. We are sure some community members wanted chemical-free foods."

"It serves as our natural source of nutrients and medicine. It is also best source of food for animals"

"The households have ready source of vegetables throughout the year because Indigenous Vegetables thrindigenous vegetablese in all season, even during drought or heavy rainy-day."

"Aside from foods, Indigenous Vegetables have also medicinal value and excellent source of vitamins and minerals for our daily needs. It's a big help during times of emergency, because it is abundant in our surroundings"

"It plays a very important role in our lindigenous vegetableses. During World War 2, there was famine; hence, we were not able to grow crops. However, Indigenous Vegetables made us survindigenous vegetablesed."

"We acknowledged the benefits of Indigenous Vegetables in our life, but sometimes we are hesitant to share them with our friends from other places, who are not familiar with Indigenous Vegetables. We are not aware any chemicals present in the plant that may not be safe for their health."

The findings support the study of (Schreinemachers and Woperies ,2018) that today vegetables provide promising economic opportunity in the rural areas and mankind's most affordable source of vitamins and minerals needed for good health.

Table 8. Benefits of Indigenous Vegetables in the Local Community

Participants	What are the benefits of IV in your household	Does the IV has economic value in your community?	Do you think the presence of IV in your community contributes to the food security in the local community?
1	Provide free vegetables to the whole household	Yes, because IVare easy to grow and do not require commercial fertilizer and other chemicals	The IV contributes to the food security of the household. The IV saved us from hunger during the pandemic, which the movement of the residents to go to the market is very limited. We are grateful that IV are available to be used as vegetables and save our daily needs of nutrition.
2	It's a source of fresh and nutritious foods to the pregnant and nursing mothers	Yes, we gain extra income from IV because we sell them in the neighboring barangay.	The IV were big help in our household we have an immediate source of organic vegetables and we are sure that those vegetables are free from hazardous chemicals. By that, we are sure that our households are consuming chemical-free foods.
3	It ensures that the chemical-free	Yes, we just harvested IV in the riverbanks for free to feed our	Yes, even IV is not popular in other places, but here in our place, it very important source

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	vegetable to the community	animals, it lessens the cost feeds. We can raise animals with buying commercial feeds.	of foods. It saves the local people from hunger .It saves the local people during dry season, where other crops are scarce. When calamities arise, like typhoon, where people in the community are in food crisis, IV contribute to sustain their food needs.
4	During the pandemic, INDIGENOUS VEGETABLES consumption boast our immune system	Yes, because we considered INDIGENOUS VEGETABLES as our best source of natural vitamins and minerals we do not need to buy vitamins and minerals from the market.	Yes, IV is the prime source of nutritious vegetables in the rural households especially for those living in the mountainous areas.
5	It helps poor people like us to eat balance diet	Yes, IV is a potential source of livelihood. It can be made into pickle .	Yes, because IV are considered as best source of micronutrient needed in our body. In our place, some mother after giving birth mothers are encouraged to eat IV like *lupo lupo* to support her iron needs.
6	It adds beauty to our surroundings and conserve our environment	Yes, IV can give us economic opportunities in many ways, it can be cultivated in the garden without cost to advance our food needs and nutrition security.	Yes, to the poor people like our households living in the secluded place, we do not have regular source of income to buy viand, IV is our best source of food to survive in this trying times.

Conclusions

The indigenous vegetables are resilient and can survive in any climatic and topographic condition. Indigenous vegetables are available throughout the year and offer food security to the local households. Popular dishes prepared from IV are local courses using ingredients abundant in the area, like coconut and native shells. Some IV are not only consumed as food but also recognized as a valuable source of traditional medicine. Community recognized the economic benefits of IV to the local household. It maintains the stability of local household's life during crises.

Recommendations

1. Conservation of indigenous vegetable by the local community may be promoted .
2. To ensure food safety, biochemical analysis of the commonly consumed IV maybe be done.
3.The ASU Hospitality program may integrate the use of IV in culinary tourism courses.
5. Further study along this line maybe conducted to explore the biochemical component of IV .

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