

Awareness and Challenges of Jamindanganon about *Hibiscus surattensis* Potential

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Abstract. In the Philippines, *Hibiscus surattensis* is particularly abundant in Panay Island, specifically in Jamindan, Capiz, Philippines, where it is readily available in local markets. Distinguished by its green hue, the native *Hibiscus surattensis* stands apart from the red-tinged variety. Research has shown that extracts of *H. surattensis* possess biologically active phytochemicals with notable antioxidant, antiplasmodial, and antidiabetic effects, which supports these traditional uses and highlights its pharmacological promise. However, despite this emerging evidence, significant gaps persist in public awareness, scientific validation, and sustainable utilization strategies for *H. surattensis*. This study was conducted to assess the awareness and knowledge of Jamindanganon about *Hibiscus surattensis* potential. Survey research was employed to assess the distribution, awareness, and challenges associated with *Hibiscus surattensis* production. The survey results revealed a high level of awareness regarding *Hibiscus surattensis* in Jamindan, with 100% of the respondents reporting familiarity with the plant. The primary source of information for most respondents was family and relatives, accounting for 99.58%, emphasizing the role of familial networks in transmitting knowledge about the plant. When asked about their familiarity with the plant, 97.08% of respondents reported being "very familiar" with it. The Jamindanganons recognize *Hibiscus surattensis* for its use as a food ingredient; however, there is a significant gap in their knowledge regarding its production system and broader agricultural potential. To fully realize its value as a commercially viable crop, there is a need for government support, education, and resources to prioritize its cultivation and promote it as an economically beneficial crop for the community.

Introduction

In the Philippines, *Hibiscus surattensis* is particularly abundant in Panay Island, specifically in Jamindan, Capiz, Philippines, where it is readily available in local markets. Distinguished by its green hue, the native *Hibiscus surattensis* stands apart from the red-tinged variety. Jamindanganon has made conscious efforts to preserve and conserve these plants by planting native *Hibiscus surattensis* in their gardens, crop fields, and communal lands, which are used as souring ingredients in their food (Lokalpedia, 2023). Medicinal and underutilized plant species like *Hibiscus surattensis* occupy a vital yet often overlooked niche in global ethnobotanical and pharmacological research. While many communities across Africa and Asia have traditionally used *H. surattensis* for treating ailments such as malaria, inflammation, and diabetes, scientific documentation of its therapeutic potential remains fragmented and scarce. Research has shown that extracts of *H. surattensis* possess biologically active phytochemicals with notable antioxidant, antiplasmodial, and antidiabetic effects, which supports these traditional uses and highlights its pharmacological promise (Tiko et al., 2020). However, despite this emerging evidence, significant gaps persist in public awareness, scientific validation, and sustainable utilization strategies for *H. surattensis*. Ethnobotanical studies in other plant species demonstrate that systematic surveys of community awareness and challenges associated with local plant resources are essential to identify priority species for conservation, research, and potential drug development (Mahwasane, 2013). Without such baseline data, indigenous knowledge may be lost, opportunities for scientific investigation missed, and the socioeconomic benefits of these plants underrealized.

Moreover, documenting the cultural and practical contexts in which *H. surattensis* is used can provide critical insight into patterns of use, perceived efficacy, and barriers to adoption that are not apparent from laboratory studies alone. Hence. This study was conducted to assess the awareness and knowledge of Jamindanganon about *Hibiscus surattensis* potential.

Methodology

Study Area

This study was conducted in the Municipality of Jamindan, Capiz, Philippines. Jamindan is known for its diverse flora, including wild edible plants such as *Hibiscus surattensis*.

Research Design

Survey research was employed to assess the distribution, awareness, and challenges associated with *Hibiscus surattensis* production.

Respondent Selection

A total of 480 respondents were surveyed, consisting of local farmers, agricultural officers, and *Hibiscus surattensis* vendors who engage in the collection, cultivation, and marketing of *Hibiscus surattensis*.

Questionnaire Development

A structured questionnaire developed by Ridwane (2022) was designed to assess the awareness and knowledge of *Hibiscus surattensis*'s uses, ecological role, economic potential, current production, harvesting practices, challenges encountered in its collection, cultivation, marketability, potential solutions, and recommendations from the local community.

Survey Administration

Trained enumerators conducted interviews in local Barangays, ensuring that the respondents fully understood the questions. Interviews took place in their houses, offices, and business stalls. Interviews were conducted in the respondents' preferred language for clarity.

Data Analysis

Survey data were analyzed using R - software to determine the frequency and percentage distribution of responses.

Ethical Considerations

Respondents were briefed about the study's purpose, and written consent was obtained before participation. All data collected was kept confidential and used solely for research purposes. Findings were shared with local stakeholders to contribute to sustainable management and utilization of *Hibiscus surattensis* in Jamindan, Capiz, Philippines. Ethical clearance was secured before the conduct of the survey.

Results and Discussion

Sociodemographic Profile

Table 1 presents the sociodemographic profile of respondents, offering a comprehensive analysis of the population's characteristics. The sample is predominantly composed of middle-aged to older adults. The largest demographic group comprises individuals aged 46-55, representing 56.46% of the sample, followed by those aged 36-45 at 26.46%. The younger age cohorts are underrepresented, with no respondents in the 18-25 age group and only 2.08% in the 26-35 range. This age distribution suggests a predominance of mature individuals within the sample, with minimal participation from younger age groups. In line with this demographic distribution, several studies have highlighted the tendency for older populations to participate more in community-based surveys due to their greater availability, established community ties, and interest in local matters (Gough et al 2021). Older adults are also more likely to engage with topics related to local

environmental and health knowledge, including awareness and use of indigenous plants such as *Hibiscus surattensis* (Turner 2022).

Regarding educational attainment, the majority of respondents have completed basic to secondary education. Specifically, 48.96% of respondents attained elementary education, while 43.54% reached high school level. A smaller proportion of the sample (7.08%) holds a college degree, and a negligible percentage (0.42%) reported having no formal education. The absence of respondents with postgraduate qualifications indicates a concentration of educational attainment at the lower and mid levels, reflecting a generally moderate level of formal education within the sample population.

This educational distribution is consistent with findings from recent studies showing that rural and less urbanized populations typically exhibit lower levels of higher education, with a greater proportion of individuals completing only elementary or secondary education (Li & Zhang 2020). Structural barriers, such as limited access to educational resources and institutions in rural areas, often contribute to disparities in educational attainment (Irvin et al 2012).

Regarding residency duration, the sample shows significant stability and long-term residence in Jamindan. A substantial majority (96.67%) of respondents have lived in the area for more than 10 years, suggesting a high degree of community integration and familiarity with the local context. The small percentage of respondents with less than 10 years of residency highlights the long-term nature of the local population and the limited influx of recent residents.

Studies have shown that long-term residents in rural or community-based settings tend to possess a more profound knowledge of local flora and fauna, such as *Hibiscus surattensis*, due to their generational exposure and interactions with the environment (Mekonnen et al 2022). This local knowledge is often passed down within communities, allowing residents to retain detailed information about traditional plant uses and their roles in health, culture, and agriculture (Tran et al 2025).

The Sociodemographic Profile indicates that the respondent population is predominantly middle-aged to older adults with long-term residency in Jamindan. Educational attainment is concentrated at the elementary and high school levels, with limited representation from younger individuals and those with higher education. This demographic profile suggests a stable, locally knowledgeable community with relatively low age and educational background diversity. Moreover, the long-term residents' awareness and knowledge of local flora, particularly *Hibiscus surattensis*, are likely influenced by their strong ties to the community and traditional plant knowledge, as supported by recent literature on rural knowledge systems and indigenous plant use.

Age Group	Frequency	Percentage
18-25	0	0.00
26-35	10	2.08
36-45	127	26.46
46-55	271	56.46
56 and above	72	15.00
Educational Attainment		
No Formal Education	2	0.42
Elementary	235	48.96
High School	209	43.54
College	34	7.08
Postgraduate	0	0.00
Years of Residency in Jamindan		
< 5 years	1	0.21
5 to 10 years	15	3.13
> 10 years	464	96.67

Table 1. Sociodemographic Profile of Respondents

Awareness and Knowledge in Hibiscus surattensis

Data on Awareness and Knowledge in *Hibiscus surattensis* is presented in Table 2. The survey results indicate that *Hibiscus surattensis* is universally recognized within the community, with 100% of respondents reporting awareness of the plant. This high level of understanding is indicative of the plant's significance in local culture, particularly as a food ingredient.

According to Tiko et al (2020), *Hibiscus surattensis* is commonly utilized in culinary applications due to its distinct tart flavor and nutritional value, a characteristic likely contributing to its widespread recognition in the surveyed population. Additionally, the primary source of information for nearly all respondents (99.58%) was family members or relatives, with only a small fraction (0.42%) citing neighbors. This finding underscores the importance of familial networks in the transmission of plant knowledge, particularly in rural communities where traditional knowledge is often passed down through generations (Soreng et al 2021). Such information transmission is critical in communities where local flora plays an essential role in dietary practices and medicinal uses.

Familiarity with *Hibiscus surattensis* within the community is extremely high, with 97.08% of respondents reporting being "very familiar" with the plant. This strong familiarity aligns with the findings of Estrada-Castillón et al (2021), who noted that communities with strong ties to local flora, especially those used for food or medicine, tend to have a high level of knowledge about these species. The extensive familiarity observed here reflects the plant's regular inclusion in local diets, further supported by the finding that all respondents (100%) use the leaves of *Hibiscus surattensis*. The leaves are typically valued for their rich nutritional profile, which includes vitamins, minerals, and antioxidants, making them a significant ingredient in various culinary preparations (Da-Costa-Rocha et al 2014). Additionally, 87.29% of respondents use the plant's stem, suggesting a secondary but notable role in plant propagation. However, the flowers, roots, and seeds of *Hibiscus surattensis* were not used by any respondents, indicating that these parts of the plant are not traditionally utilized in local culinary, medicinal and production practices.

Regarding changes in the presence of *Hibiscus surattensis*, the majority of respondents (95.42%) reported a decrease in the plant's availability, with only 1.04% observing no change and 0.21% reporting an increase. This trend aligns with the findings of Marrero et al (2022), who identified similar declines in the populations of traditional food plants due to environmental pressures such as climate change, habitat loss, deforestation, and land conversion. The reported decrease in the presence of *Hibiscus surattensis* suggests that these ecological challenges may be affecting the plant's availability in the local environment, posing a threat to communities reliant on it for food and other uses. McCune (2024) also noted that the decline in local plant populations is an emerging concern in rural areas, underscoring the need for conservation efforts to sustain the availability of essential plant species such as *Hibiscus surattensis*.

The high level of awareness and familiarity with *Hibiscus surattensis*, combined with its predominant use as a food ingredient, reflects its cultural and nutritional importance in the surveyed community. However, the observed decline in plant presence highlights potential environmental risks, underscoring the need for measures to sustain this valuable resource.

Awareness of <i>Hibiscus surattensis</i>	Frequency	Percentage
Yes	480	100.00
No	0	0.00
Sources of Information		
Family/Relatives	478	99.58
Neighbors	2	0.42
Familiarity Level		
Very Familiar	466	97.08
Moderately Familiar	14	2.92
Slightly Familiar	0	0.00
Not Familiar	0	0.00
Parts Used		
Leaves	480	100.00
Stem	419	87.29
Flowers	0	0.00
Roots	0	0.00
Seeds	0	0.00
Changes in <i>Hibiscus surattensis</i> presence		
No Change	5	1.04
Increasing	1	0.21
Not Sure	17	3.54
Decreasing	458	95.42

Table 2. Awareness and Knowledge of Hibiscus surattensis

Knowledge on Distribution

The survey results indicate that *Hibiscus surattensis* is primarily cultivated in backyard gardens, with 96.67% of respondents indicating this as the main growing location. This suggests that the plant is integrated mainly into local household practices, likely due to its culinary, medicinal, or ornamental value. This finding aligns with the work of Casagrande et al (2020), who highlighted the importance of backyard gardens for cultivating local plants in rural areas. These gardens provide easy access to plants like *Hibiscus surattensis*, which are commonly used in daily life. Additionally, 24.79% of respondents reported growing the plant in agricultural fields, and smaller proportions noted cultivation along roadsides (23.96%) and in forests or mountains (22.50%). These secondary growing locations suggest that while *Hibiscus surattensis* is largely managed in domestic settings, it is also found in agricultural areas and roadside environments, which may offer less controlled but still viable spaces for plant growth. Casagrande et al (2020) support this by noting that plants with local significance, such as *Hibiscus surattensis*, are cultivated in diverse environments, but backyard gardens remain the most common and accessible space for cultivation.

Regarding the even distribution of *Hibiscus surattensis* across Jamindan, 99.38% of respondents affirmed its widespread presence, indicating that the plant is commonly found throughout the area. However, 0.63% of respondents suggested that the plant is not evenly distributed, which could be attributed to minor variations in local cultivation practices or environmental conditions. This finding supports the observations of Ebrahimi and Shahdi (2010), who found that plant distributions in rural communities can vary regionally in response to local environmental factors, such as microclimates and variations in soil quality and water availability.

In contrast, the majority of respondents (68.13%) disagreed with the idea that certain barangays have higher concentrations of *Hibiscus surattensis*. However, 22.08% of respondents noted that it is more common in upland barangays. These upland areas may provide more favorable conditions for the plant's growth due to variations in elevation, climate, and soil quality. Such variations in environmental conditions are often cited as contributing factors to differences in plant distribution across rural regions (Ebrahimi & Shahdi 2010).

The survey also highlights that *Hibiscus surattensis* thrives in conditions characterized by heavy rainfall, with 85% of respondents reporting this as a key favorable factor. This is consistent with the findings of Silva et al (2021), who noted that *Hibiscus surattensis*, like many tropical plants, requires ample water for healthy growth. The absence of respondents identifying dry conditions, shaded areas, or fertile soil as favorable conditions further emphasizes the plant's preference for tropical climates with regular rainfall. However, 13.13% of respondents mentioned fertile soil as an important factor, suggesting that while water availability is crucial, soil fertility may also support plant growth, though it is secondary to rainfall. This observation aligns with previous studies, such as those by Casagrande et al (2020), which found that Hibiscus species tend to flourish in moderate soil conditions when sufficient moisture is available.

Regarding the threats to *Hibiscus surattensis*, climate change was the most commonly cited concern, with 71.88% of respondents acknowledging it as a major threat. This aligns with the findings of McCune et al (2021), who identified climate change as a significant threat to plant biodiversity, particularly in tropical regions where changing precipitation patterns and temperature fluctuations can disrupt plant growth. The concerns about deforestation (17.71%) and land conversion (10.42%) further support this, indicating that habitat destruction from agricultural expansion or urban development poses additional risks to the sustainability of *Hibiscus surattensis* in Jamindan. Faria et al (2023) found similar concerns about land-use changes, noting that deforestation and the conversion of agricultural land for other uses lead to the loss of habitats for important local plant species. Interestingly, no respondents identified overharvesting as a threat, suggesting that *Hibiscus surattensis* is not currently subject to unsustainable harvesting practices, or that such practices are not perceived as a major issue in the community.

Growing Location	Frequency	Percentage
Backyard Gardens	464	96.67
Agricultural Fields	119	24.79
Along roadsides	115	23.96
Forests and Mountains	108	22.50
Near rivers and streams	0	0.00
<i>Is Hibiscus surattensis</i> evenly Distributed in Jamindan		
Yes	477	99.38

No	3	0.63
Not Sure	0	0.00
<i>Are there specific Barangays where Hibiscus surattensis is more abundant?</i>		
Yes	106	22.08
No	327	68.13
Not Sure	3	9.79
<i>Favorable Condition for Hibiscus surattensis</i>		
Heavy Rainfall	408	85.00
Dry conditions	0	0.00
Shaded Areas	0	0.00
Full Sunlight	9	1.88
Fertile Soil	63	13.13
<i>Threats in Growing Hibiscus surattensis</i>		
Climate Change	345	71.88
Deforestation	85	17.71
Land Conversion	50	10.42
Overharvesting	0	0.00

Table 3. Knowledge of Hibiscus surattensis Distribution

Knowledge of Growing Hibiscus surattensis

The data in Table 4 provide valuable insights into cultivation practices and challenges associated with *Hibiscus surattensis*. The survey results indicate that *Hibiscus surattensis* is universally cultivated within the community, with all 480 respondents confirming its cultivation. This suggests that the plant is widely integrated into local agricultural or household practices. The high level of engagement with *Hibiscus surattensis* supports findings by Galhena et al (2013), who emphasized that plants with significant cultural, culinary, or medicinal value are often cultivated in rural areas, especially in backyard gardens. These gardens are critical for maintaining local biodiversity, as they provide an accessible space to grow plants like *Hibiscus surattensis*, which are used for various household purposes. Furthermore, Nagashima (2019) observed that in many rural communities, small-scale cultivation of indigenous plants such as *Hibiscus surattensis* is common, particularly for personal consumption, reflecting its integration into daily life.

Regarding the planting areas, 98.12% of respondents reported cultivating *Hibiscus surattensis* in backyard gardens, which suggests that the plant is managed on a small scale, primarily for local use. This finding is consistent with the work of Galhena et al (2013), who noted that home gardens are vital for growing indigenous plants, as they are accessible and easy to manage. Only 1.67% of respondents use pots or containers for cultivation, while just 0.21% reported growing it on farmland. This suggests that *Hibiscus surattensis* is not grown for commercial purposes in the surveyed area, but is primarily managed as a household resource.

In terms of soil preference, the survey indicates that 67.08% of respondents believe loamy soil is the best for growing *Hibiscus surattensis*. Loamy soil, with its ideal combination of sand, silt, and clay, is well-draining and nutrient-rich, providing an optimal environment for healthy root development and plant growth. Hibiscus species, including *Hibiscus surattensis*, thrive in loamy soil due to its balanced texture, which allows for efficient moisture retention and drainage. Although 27.50% of respondents believed the plant could grow in any soil type, loamy soil was still the most frequently identified as ideal. Only 0.42% of respondents considered sandy soil suitable for growing *Hibiscus surattensis*, and no respondents selected clay soil, reinforcing the plant's preference for soils that provide good drainage and nutrient retention. These findings align with research by Shoaepour et al (2021), who observed that while some Hibiscus species are adaptable to a range of soil types, loamy soil consistently provides the best growing conditions.

When it comes to growth duration, 95.42% of respondents reported that *Hibiscus surattensis* reaches maturity in 1-2 months, a relatively short period. This rapid growth cycle is consistent with the characteristics of Hibiscus species, which are known to mature quickly under favorable conditions, as observed by Singh et al (2025). The quick growth rate allows for frequent harvests, making *Hibiscus surattensis* an attractive crop for small-scale farmers and household cultivation. The remaining 4.58% of respondents indicated that the plant matures in less than a month, further suggesting that it is a fast-growing species that can be cultivated efficiently in various settings.

The survey also identified several common challenges in growing *Hibiscus surattensis*. The most frequently reported challenge was a lack of cultivation knowledge (53.75%), followed by a shortage of planting materials (27.71%). Difficulty in germination (17.92%) was also noted, and 0.63% of respondents mentioned a lack of water as a challenge. These barriers

reflect the findings of Shelembe et al (2025), who highlighted that insufficient agricultural knowledge and limited access to resources are significant obstacles to the cultivation of indigenous plants in rural communities. While water availability was not identified as a major issue, the lack of cultivation knowledge and planting materials suggests that improving education and increasing access to resources could help overcome these challenges. The lack of knowledge regarding cultivation practices is particularly concerning, as Mphande (2025) also found that knowledge gaps can hinder the successful propagation of indigenous plants, even in regions where they are traditionally used.

Despite these challenges, most respondents (99.58%) supported the idea of cultivating *Hibiscus surattensis* on a larger scale. This reflects a strong desire within the community to expand the cultivation of the plant, potentially for commercial purposes. Kumar and Singh (2022) discussed the benefits of scaling up the cultivation of indigenous plants, noting that such practices can enhance food security, promote sustainable agriculture, and provide economic opportunities in rural areas.

Cultivated <i>Hibiscus surattensis</i>	Frequency	Percentage
Yes	480	100.00
No	0	0.00
Planting area of cultivated <i>Hibiscus surattensis</i>		
Backyard Garden	471	98.12
Pots / Containers	8	1.67
Farmland	1	0.21
Soil preference that <i>Hibiscus surattensis</i> grows best		
Loamy Soil	322	67.08
Sandy soil	2	0.42
Clay soil	0	0.00
Any soil type	132	27.50
Not sure	24	5.00
<i>Hibiscus surattensis</i> Growth Duration		
More than 5 months	0	0.00
3-5 months	0	0.00
1-2 months	458	95.42
< 1 month	22	4.58
Common Challenges in Growing <i>Hibiscus surattensis</i>		
Lack of Cultivation Knowledge	258	53.75
Lack of Planting Materials	133	27.71
Difficulty in Germination	86	17.92
Lack of Water	3	0.63
Should <i>Hibiscus surattensis</i> be cultivated on a larger scale?		
Yes	478	99.58
Maybe	2	0.42
No	0	0.00

Table 4. Knowledge on Growing Hibiscus surattensis

Uses and Ecological Role of Hibiscus surattensis

Data on uses and the ecological role of *Hibiscus surattensis* are presented in Table 5. The survey results indicate that all respondents use *Hibiscus surattensis* solely as a food ingredient. This finding underscores the plant's primary utility in local diets, reflecting its status as a significant culinary resource in the community. Its widespread use in food aligns with studies showing that indigenous plants often become staples in local food systems, contributing to nutritional diversity and food security, especially in rural areas where access to commercial foods may be limited (Asfaw & Teshome 2022). The use of *Hibiscus surattensis* as a food ingredient suggests that the plant is valued for its edible parts, which can be used in local recipes to provide essential nutrients and flavor.

However, regarding the ecological role of *Hibiscus surattensis*, respondents are uncertain: 61.46% are unsure of its ecological impact, while only 38.54% affirm its positive ecological role. This lack of certainty may indicate limited awareness of the broader ecological contributions of *Hibiscus surattensis*, particularly its role in local ecosystems. Similar findings were reported by Kamara (2022), who noted that rural communities often lack awareness regarding the ecological benefits of plants unless these benefits are explicitly linked to well-understood environmental outcomes, such as erosion control or habitat provision.

Among those who recognized an ecological role for *Hibiscus surattensis*, the most commonly reported benefit was soil erosion prevention, with 48.65% of respondents acknowledging this role. This finding aligns with the ecological function of *Hibiscus surattensis* in soil conservation, as its deep root system and vegetative cover likely help stabilize the soil, especially in areas prone to erosion. Soil erosion is a critical concern in many tropical and subtropical regions, and plants such as *Hibiscus surattensis* are often used in agroforestry systems and as part of sustainable land management practices to combat soil degradation (Tiwari et al 2022). These plants not only prevent the loss of topsoil but also help maintain soil structure and fertility over time, as reflected in respondents' acknowledgment of their ecological importance.

Additionally, 32.97% of respondents reported that *Hibiscus surattensis* provides habitats for wildlife, supporting the idea that the plant contributes to biodiversity conservation. This benefit is particularly relevant in agroecological contexts, where plants sustain local wildlife populations by providing food and shelter. *Hibiscus surattensis* can support various species, including pollinators such as bees and butterflies, which are critical to the health of the broader ecosystem (Millard et al 2021). Its role in wildlife habitat provision is especially significant in rural communities that depend on natural landscapes for resources and where conservation efforts may be intertwined with agricultural practices.

A smaller proportion of respondents (18.38%) reported that *Hibiscus surattensis* improves soil fertility, suggesting that the plant's organic matter may increase soil nutrient levels. This function aligns with the role of many native plants in agroforestry systems, where plant residues contribute to nutrient cycling, improving soil health and fertility over time. Saxena and Jha (2020) confirmed that various species, particularly those in tropical ecosystems, play a vital role in enriching soil quality by returning organic matter to the soil, thereby supporting sustainable agriculture practices.

<i>Hibiscus surattensis</i> Usage	Frequency	Percentage
Food ingredient	480	100.00
Medicinal Purposes	0	0.00
Fodder	0	0.00
<i>Personally Used Hibiscus surattensis</i>		
Yes	480	100.00
No	0	0.00
<i>Does Hibiscus surattensis play an ecological role in your area?</i>		
Yes	185	38.54
Not Sure	295	61.46
No	0	0.00
<i>Ecological Benefits</i>		
Soil Erosion Prevention	90	48.65
Provides Habitats for Wildlife	61	32.97
Improves Soil Fertility	34	18.38

Table 5. Uses and Ecological Role of Hibiscus surattensis

Economic Potential and Marketability

The findings in Table 6 indicate that *Hibiscus surattensis* has significant economic potential for the community, with 100% of respondents affirming its value as a marketable commodity. This universal recognition of its economic viability suggests that the plant plays a vital role not only as a food ingredient but also as a potential income-generating resource. Indigenous plants such as *Hibiscus surattensis* have been shown to contribute significantly to local economies through both subsistence use and market participation, particularly in rural settings where access to formal markets may be limited (León-Lobos et al 2022). Furthermore, these plants often represent a diverse portfolio for smallholder farmers seeking to diversify their sources of income, with edible plants like *Hibiscus surattensis* providing both nutritional and economic value (Asfaw et al 2023).

Market presence is another critical indicator of *Hibiscus surattensis*'s economic role, as all respondents confirmed its availability in local markets. The ubiquity of *Hibiscus surattensis* in community markets demonstrates that the plant has successfully integrated into informal market networks. This is consistent with Raseth et al (2022) findings, which reported that many indigenous plants are traded primarily in local markets, where they are more accessible to small-scale producers and consumers. This market integration highlights *Hibiscus surattensis*'s economic viability at a local level, where demand is sustained by its widespread use in food preparation and other household applications.

Regarding the distribution of sales outlets, 96.25% of respondents identified local markets as the primary venue for the sale of *Hibiscus surattensis*, with a smaller proportion (3.75%) reporting sales through roadside vendors. The lack of larger-scale distribution channels suggests that while the plant has established itself in local economies, it remains a niche product within informal trade channels. This aligns with studies on the commercialization of indigenous plants, which emphasize the role of local and informal markets in facilitating trade, especially for products that are culturally significant but not yet mass-produced or widely available in formal retail outlets (Fassi & Mulat 2024).

The purchase frequency data further reinforces the marketability of *Hibiscus surattensis*, with 78.13% of respondents reporting frequent purchases and 21.88% reporting occasional purchases. The consistently high demand for *Hibiscus surattensis* suggests that it is considered an important food resource in the community, contributing to local food security and dietary diversity. Regular consumption of this plant underscores its integral role in community members' daily lives and supports its position as an economically viable product in the local market. Similar patterns have been observed in rural communities where regular consumption of locally grown plants helps to maintain both food security and economic resilience (León-Lobos et al 2022).

In terms of pricing, the majority of respondents (89.58%) indicated that *Hibiscus surattensis* is sold within the Php 50–100 price range, making it affordable and accessible to a wide range of consumers. This pricing structure ensures that the plant remains within the reach of most households while maintaining its economic accessibility in the local market. Kamara (2022) found that affordable pricing is crucial to ensuring that locally grown plants are regularly purchased and remain staples in community diets. The plant's affordability in comparison to other locally available products is likely a key factor in its sustained demand.

The survey further reveals that 98.96% of respondents would be interested in cultivating *Hibiscus surattensis* commercially, which signifies a high level of community interest in scaling production. This overwhelming interest in commercial cultivation suggests confidence in the plant's marketability and economic potential for large-scale production. Yamuna and Simon (2025) emphasize that when local communities recognize the economic benefits of cultivating a plant on a larger scale, they are more likely to adopt commercial cultivation practices, which can provide additional income streams and contribute to economic diversification in rural areas. The growing interest in scaling up production is thus a promising indicator of the plant's potential to expand its market and support local economies.

Does <i>Hibiscus surattensis</i> have Economic Potential	Frequency	Percentage
Yes	480	100.00
No	0	0.00
Unsure	0	0.00
Have you seen <i>Hibiscus surattensis</i> at the market		
Yes	480	100.00
No	0	0.00
Markets for <i>Hibiscus surattensis</i>		
Local Markets	462	96.25
Roadside Vendors	18	3.75
Super Markets	0	0.00
Online	0	0.00
How often do people in your community purchase <i>Hibiscus surattensis</i>?		
Frequently	375	78.13
Occasionally	105	21.88
Rarely	0	0.00
<i>Hibiscus surattensis</i> Price Range per Bundle		
Php 50 – Php100	430	89.58
< Php 50	50	10.42
Would you be interested in cultivating <i>Hibiscus surattensis</i> commercially?		
Yes	475	98.96
Maybe	5	1.04
No	0	0.00

Table 6. Economic Potential and Marketability

Current Production and Harvesting Practices

The findings presented in Table 7 reveal crucial insights into the current production and harvesting practices of *Hibiscus surattensis* in the community. The data suggest that *Hibiscus surattensis* is predominantly grown in home gardens, with 88.54% of respondents reporting that they grow the plant in their own gardens. This emphasizes the plant's importance as a domestically cultivated species, likely due to its culinary and local economic value. The majority of plants sourced from home gardens align with findings by Kamara (2022), who discussed how rural communities often cultivate indigenous plants in home gardens as part of sustainable food systems that provide easy access to valuable plant species without the need for commercial agricultural inputs. The role of home gardens in producing *Hibiscus surattensis* is integral to the community's food security and livelihoods, as it provides continuous access to the plant for personal consumption and informal trade.

In addition, 11.46% of respondents reported that *Hibiscus surattensis* is collected from the wild, suggesting that the plant may also grow in unmanaged or semi-managed environments within the community. However, the absence of any commercial cultivation (0%) for *Hibiscus surattensis* indicates that the plant has yet to transition into larger-scale agricultural production. This finding highlights the untapped potential for commercializing *Hibiscus surattensis*, which could expand its availability and increase its economic value. *Hibiscus surattensis* could benefit from value chain development and formalized agricultural practices, which would create opportunities for future income generation and market expansion (León-Lobos et al 2022).

Farmers (98.75%) are the primary individuals responsible for collecting *Hibiscus surattensis*, suggesting that the plant's production and harvest are largely integrated into the community's farming practices. This supports findings from Yamuna and Simon (2025), who found that in rural communities, farmers are the primary custodians of plant cultivation and harvesting, especially of plants with both subsistence and market value. Local vendors (1.25%) were also mentioned as participants in the collection, but their role in harvesting appears to be marginal compared to that of farmers.

The harvesting method employed is overwhelmingly cutting with tools (99.79%), while handpicking (0.21%) is extremely rare. The preference for tools suggests that cutting is a more efficient harvesting method, especially for a plant like *Hibiscus surattensis*, which may have multiple parts (leaves, stems) harvested simultaneously. This method is also typical for agricultural plants, where efficiency and preservation of plant health during harvesting are important to ensure continued growth and productivity (Saxena & Jha, 2020). The predominance of cutting tools over handpicking reflects common agricultural practices in which mechanization and tool-assisted harvesting improve both productivity and harvesting speed.

Regarding harvesting frequency, 86.88% of respondents reported weekly harvesting, followed by 12.92% reporting monthly harvesting, and a small minority (0.21%) reporting seasonal harvesting. The weekly frequency suggests that *Hibiscus surattensis* is cultivated primarily for regular use within the community, which is consistent with its role as an important dietary resource. The seasonal variation in harvesting practices might be influenced by environmental conditions or crop cycles, with some respondents harvesting only during certain seasons. This observation aligns with findings from Tadesse et al (2025), who highlighted that seasonal availability and harvesting cycles are significant factors in indigenous plant collection in rural communities.

The main challenges identified in the survey include seasonal availability (97.71%) and environmental concerns (50.00%). The dominance of seasonal availability as a challenge suggests that *Hibiscus surattensis* may not be available year-round or may require specific growing conditions, limiting its consistent availability for local consumption or sale. This is consistent with findings from Steinke et al (2023), who noted that many wild and domesticated plants face challenges related to seasonal growing patterns, which affect both supply and demand. Environmental concerns (50%) could include climate change, soil degradation, and unsustainable harvesting practices, all of which can affect the plant's availability and health. These challenges call for sustainable agricultural practices and climate adaptation strategies to ensure that *Hibiscus surattensis* remains a viable resource for local communities in the future.

How is <i>Hibiscus surattensis</i> obtained in your community?	Frequency	Percentage
Home Gardens	425	88.54
Collected from the wilds	55	11.46
Commercially Cultivated	0	0.00
Who Collects <i>Hibiscus surattensis</i>?		
Farmers	474	98.75
Local Vendors	6	1.25
Harvesting Method commonly Used		
Cutting with Tools	479	99.79
Handpicking	1	0.21
Frequency of Harvesting		

Daily	0	0.00
Weekly	417	86.88
Monthly	62	12.92
Seasonally	1	0.21
Main Challenges during Harvest		
Seasonal Availability	469	97.71
Environmental Concerns	240	50.00

Table 7. Current Production and Harvesting Practices

Challenges and Potential Solutions

The data presented in Table 8 reveal critical challenges and potential solutions for the cultivation and marketability of *Hibiscus surattensis* within the community. The most significant limitation to cultivation identified by respondents is limited knowledge of cultivation (52.71%), highlighting the need for specialized agricultural knowledge for optimized production. This knowledge gap presents a major barrier to improving yield and production efficiency. Such limitations are consistent with Ragasa et al (2022) findings, which highlighted that training programs are crucial for improving farmers' technical skills and enhancing agricultural output, particularly for non-commercial plants. Knowledge deficits can also hinder sustainable production systems, making it difficult for farmers to adopt better practices, such as pest management and proper soil care, which are essential for long-term crop productivity.

Another limitation identified is the lack of planting materials (26.88%), reflecting a resource constraint for obtaining quality seeds and seedlings. This challenge is well documented in rural agricultural systems, where the availability of planting materials is often limited, resulting in low germination rates and uneven crop establishment. As Asfaw et al (2023) note, addressing seed access can significantly improve crop establishment and ensure the sustainable growth of plants such as *Hibiscus surattensis*. The lack of market demand (26.25%) is also cited as a challenge, indicating that while *Hibiscus surattensis* is commonly used within the community, there is limited commercial market uptake. This is not unusual for underutilized crops, which often face barriers to wider commercialization due to low consumer awareness and limited demand outside local consumption patterns. As León-Lobos et al (2022) point out, many indigenous plants face these challenges due to cultural unfamiliarity with the plant's uses and benefits. Expanding consumer education and marketing campaigns focused on the nutritional and medicinal benefits of *Hibiscus surattensis* could foster greater demand and wider market integration.

The primary challenge to the marketability of *Hibiscus surattensis* is limited supply (83.96%), underscoring insufficient production capacity. Small-scale production and seasonal harvests limit the plant's availability, making it difficult to meet potential market demand. This barrier is particularly common in informal agricultural systems, where productivity is constrained by seasonality and inefficiencies in production. As Kamara (2022) highlights, addressing this challenge requires scaling up production systems and improving supply chain mechanisms to ensure consistent supply and quality. This can be achieved through capacity building and production diversification to meet market demand year-round.

The low consumer awareness (14.58%) of *Hibiscus surattensis* is another obstacle to its marketability. Although the plant is regularly consumed within the community, its benefits are not well known outside local circles. This finding aligns with Tampaki et al (2024), who observed that consumer awareness campaigns are necessary to increase market acceptance of indigenous crops. Educational programs that highlight the plant's health benefits, such as its potential role in nutritional security and dietary diversification, could help raise awareness and stimulate demand. Moreover, promotion in local markets (44.58%) is widely viewed as a potential solution, underscoring the need to enhance visibility and access within existing community trade networks.

Respondents also suggested potential solutions to improve the marketability of *Hibiscus surattensis*, including government support (28.96%) and the development of training programs for farmers (26.46%). These solutions reflect a need for institutional support and policy frameworks to encourage the commercial cultivation of indigenous plants. As Yamuna and Simon (2025) emphasize, government interventions, such as subsidies, capacity building, and market facilitation, can play a pivotal role in promoting smallholder agriculture and scaling up the production of marketable indigenous crops. Such efforts can create more formalized value chains, improving market access and ensuring that *Hibiscus surattensis* reaches a wider audience.

Limitations in Cultivation	Frequency	Percentage
Limited Knowledge on Cultivation	253	52.71

Lack of Planting Materials	129	26.88
Lack of Market Demand	126	26.25
Factors that hindered Marketability		
Limited Supply	403	83.96
Low Consumer Awareness	70	14.58
Competition from other Vegetables	7	1.46
Potential Solutions for Improving Marketability		
Promotion in Local Markets	214	44.58
Government Support	139	28.96
Training Programs for Farmers	127	26.46

Table 8. Challenges and potential solutions

Recommendations from the Local Community

The findings from Table 9 demonstrate that the local community is highly engaged and supportive of initiatives to enhance knowledge, conservation, and utilization of *Hibiscus surattensis*. With 100% of respondents affirming the need for additional research and awareness programs, the results indicate unanimous recognition of the importance of enhancing both scientific understanding and public awareness of the plant. This unanimous agreement highlights the community's acknowledgment that greater research could uncover new uses, improve cultivation methods, and provide evidence of its nutritional and medicinal benefits. As Ndlovu et al (2024) point out, research and public awareness are key to the sustainable development of underutilized plants, as they inform both production practices and market development. With greater understanding, communities can better appreciate the value of plants like *Hibiscus surattensis*, thereby driving both conservation and economic growth.

Equally noteworthy is respondents' 100% willingness to participate in programs focused on the conservation and utilization of *Hibiscus surattensis*. This overwhelming support suggests a strong sense of community responsibility and a desire to engage in sustainable practices that will ensure the plant's continued availability and benefits. The unanimous response indicates that the community is ready to take an active role in conservation efforts, including improving cultivation techniques, protecting natural habitats, and raising awareness of the plant's benefits. Such participation is crucial for the long-term success of community-based conservation programs, as these initiatives are most effective when driven by local involvement and ownership (Berhane 2025). By integrating traditional knowledge with scientific research, such programs can enhance biodiversity and contribute to the sustainable use of *Hibiscus surattensis*.

In line with these findings, León-Lobos et al (2022) emphasize the importance of community participation in the conservation and sustainable management of indigenous plants. They argue that when local communities are actively involved, conservation programs are more likely to succeed, as they align with local needs and incorporate local ecological knowledge. Moreover, Tiwari et al (2022) stress that engagement in conservation activities can lead to a sustainable food system that benefits both the environment and local livelihoods. Government support, in the form of training programs and research funding, would also help to facilitate the success of such community-led conservation efforts, reinforcing the sustainable use of *Hibiscus surattensis*.

Do you think more research and awareness programs should be conducted about <i>Hibiscus surattensis</i> ?	Frequency	Percentage
Yes	480	100.00
No	0	0.00
Would you be willing to participate in programs for <i>Hibiscus surattensis</i> conservation and utilization?		
Yes	480	100.00
No	0	0.00

Table 9. Recommendations from the Local Community

Conclusion and Implications

The Jamindanganons recognize *Hibiscus surattensis* for its use as a food ingredient; however, there is a significant gap in their knowledge regarding its production system and broader agricultural potential. To fully realize its value as a

commercially viable crop, there is a need for government support, education, and resources to prioritize its cultivation and promote it as an economically beneficial crop for the community.

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Competing Interests Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability Statement

The data supporting the findings of this study are available from the authors upon reasonable request and can be accessed at any time.

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Appendices

No appendices are attached to this study.