

Ethnobotanical Study on Traditional Cuisine of the Jakun Community in Kampung Peta, Johor Malaysia

Salmysa Naziera Sham¹, Siti Fatimah Sabran^{1*}

¹ Department of Technology and Natural Resources, Faculty of Applied Sciences and Technology, UTHM Kampus Cawangan Pagoh, Hab Pendidikan Tinggi Pagoh, KM 1, Jalan Panchor, 84600 Pagoh, Muar, Johor, MALAYSIA.

*Corresponding Author: fatimahsb@uthm.edu.my

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Abstract

This ethnobotanical study explores the traditional cuisine of the Jakun community in Kampung Peta, Johor, focusing on the plants used, cooking methods, and cultural practices. The study aims to document and analyze the traditional knowledge of the Jakun community, emphasizing the role of plants in their daily lives and cuisine. Data were collected through semi-structured interviews with three experienced informants and participatory observation. A total of 11 plant species were identified, including cassava (*Manihot esculenta*), torch ginger (*Etlingera elatior*), and pitcher plants (*Nepenthes mirabilis*), and eight other species serving distinct culinary roles. The findings reveal the diverse uses of these plants, such as cassava as a staple ingredient, pitcher plants as natural food vessels, and *Phrynium* leaves as wrappers for steaming food. The preparation of signature dishes like *Nasik Randau* a communal rice dish wrapped in *Phrynium* leaves, and *Keket Daging*, a traditional meat dish cooked with local spices, highlights the community's reliance on locally sourced plants and traditional methods. The cultural significance of these culinary practices underscores the Jakun community's connection to their natural environment and their efforts to preserve heritage through foods. However, modernization has introduced changes, with modern tools largely replacing traditional utensils, although some conventional practices persist. This study concludes that the Jakun community's culinary traditions are deeply rooted in their environment and cultural heritage. It emphasizes the importance of documenting and preserving traditional knowledge to maintain cultural identity and sustainable practices in the face of modernization.

1. Introduction

The *Orang Asli*, meaning "original people" in Malay, are the indigenous inhabitants of Peninsular Malaysia. They trace their origins to migration routes from China and Tibet approximately 5000 years ago, spreading across Southeast Asia to settle in Peninsular Malaysia and the Indonesian archipelago. The *indigenous people* population consists of 18 ethnic groups, categorized into three main groups: the Semang (Negrito), Senoi, and Aboriginal Malay (Proto-Malay). Proto-Malays, the second-largest tribe, comprise six subtribes: Jakun, Kanaq, Kuala, Seletar, Temuan, and Semelai. Concentrated in the middle and southern states of Peninsular Malaysia, such as Selangor, Negeri Sembilan, Pahang, and Johor, Proto-Malays are believed to have originated from Yunnan, Asia, based on cultural and linguistic evidence [1].

Proto-Malay migration followed significant waves, starting with Austronesian speakers settling in Taiwan before 4000 B.C., and later moving southward through Southeast Asia around 2500 years ago [2]. A subsequent wave crossed the Straits of Malacca, migrating northward from Java to Peninsular Malaysia between 1500 and 50 B.C. [3]. Among Proto-Malay subtribes, the Jakun are particularly notable for their rich cultural heritage, deeply intertwined with the surrounding flora for food, medicine, and shelter [4]. Their traditional knowledge (TK), encompassing biodiversity-related practices and customs, represents an integral part of Malaysia's multiethnic identity but faces threats of erosion due to modernization and generational shifts [5].

The Jakun community of Kampung Peta in Johor is known for their traditional cuisine, which relies on a deep understanding of local plant biodiversity. However, the transmission of this knowledge to younger generations is declining, with modernization, environmental changes, and cultural shifts contributing to this loss [6][7]. Documenting and preserving this TK is vital to safeguarding the nation's cultural heritage and ensuring the sustainability of such practices for future generations [8][9]. Ethnobotanical studies can play a critical role in preserving these practices and mitigating the risk of TK disappearing.

This study aims to document the plants, ingredients, cooking methods, and cultural practices integral to the Jakun community's dietary customs in Kampung Peta. Specifically, it will identify plants species utilized in traditional dishes, describe the preparation techniques, and highlight the cultural significance of these practices in the Jakun community's daily life. By examining the role of traditional knowledge in fostering sustainability, food security, and health, the research contributes to broader efforts to preserve indigenous knowledge systems. Additionally, the study will explore how traditional dietary practices can offer resilience amid environmental challenges and societal changes, strengthen their relevance to contemporary sustainability efforts.

By documenting and analyzing these traditional practices, the study seeks to ensure the conservation of the Jakun community's cultural heritage. This research aligns with national and international movements advocating for the preservation of indigenous knowledge, biodiversity, and sustainable practices. Through this work, valuable insights can be gained into sustainable food systems and the promotion of cultural identity in an evolving modern landscape.

2. Methodology

2.1 Study Area

This study had two components field work and laboratory work. The study area involved in this study is Kampung Peta where the informants came from and where the plant samples were collected.

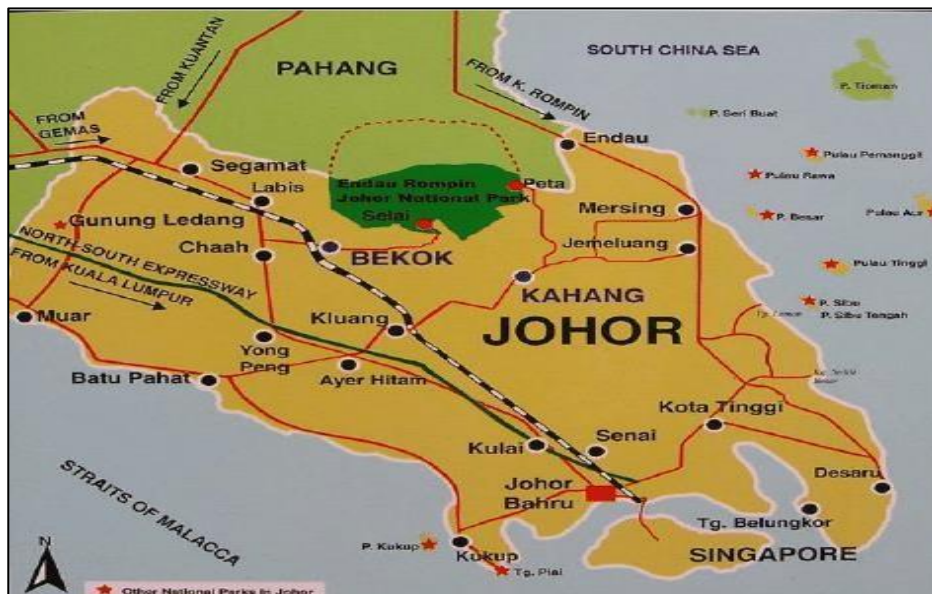


Fig 1 The location of Kampung Peta in Johor National Park Endau-Rompin

Kampung Peta (Fig. 1) is located in Mersing, Johor, approximately 63 km from Kahang town [10]. The village is near the Taman Negara Johor Endau Rompin National Park and becomes the main eastern entrance to TNJER which is known for its lush forests and diverse flora and fauna. Communities of Jakun in Kampung Peta have had a direct hand in the creation of Johor Endau Rompin National Park. Amid the world's oldest tropical jungle, Kampung Peta is recognized as the hub of Orang Asli cultural tourism attractions, making it a distinctive and unusual place to visit [11].

2.2 Ethical Authorisations

Approval was obtained from the Department of Orang Asli Development (JAKOA) under the Malaysia Ministry of Rural and Regional Development before starting data collection. Written Prior Informed Consent (PIC) was obtained, and Access and Benefit Sharing (ABS) were explained during data collection. The participation of the headman (*tok batin*) of the Jakun community in Kampung Peta was required to demonstrate our commitment to satisfying the ABS process currently. Informants' participation was contingent on their willingness and acceptance of the terms of PIC and ABS, which were specifically designed for this study program.

2.3 Data Collection

Fieldwork was conducted in Kampung Peta using qualitative methods to identify key informants. The process began with a courtesy call to the village headman (*Tok Batin*), during which the research objectives were explained, and his role in selecting participants was outlined. The selection of key informants was based on specific criteria, including extensive knowledge of traditional foods and practices, active involvement in community cultural activities, and a willingness to share detailed ethnobiological information. The study prioritized the older generation due to their extensive knowledge of traditional foods and practices. Additionally, diversity in terms of age, gender, marital status, education, and beliefs was considered to capture a broad spectrum of perspectives. The village headman played a pivotal role in recommending individuals who were respected within the community and had firsthand experience with traditional food practices. Semi-structured interviews were employed, consisting of two parts: the informants' demographic profiles (e.g., name, age, gender, marital status, education, and occupation) and detailed information on plant usage and traditional food preparation. The interviews were conducted in Malay and recorded using a voice recorder or notebook, with informants given the option to decline participation if uncomfortable.

Participatory observations were also conducted during informal social gatherings to foster rapport and trust between the researcher and the informants. This approach facilitated the collection of ethnobiological information related to the traditional cuisine of the Jakun community. Three key informants, identified as R1, R2, and R3, provided insights based on their diverse backgrounds in terms of age, marital status, education, and beliefs. These methods collectively ensured a deeper understanding of the traditional culinary practices and plant usage within the community.

2.4 Plants Identification

Plant samples were collected following standardized protocols to ensure accuracy, preservation, and documentation for scientific research. The collection process involved systematic field surveys, where plants of interest were identified based on their known or reported use in traditional Jakun cuisine. Criteria for plant selection included frequency of mention by informants, relevance to traditional dishes, ease of access, sustainability of collection, and observable features suitable for scientific analysis. GPS coordinates were recorded to document precise collection locations, and multiple specimens were gathered to account intraspecific variation. Plant samples were carefully collected, ensuring minimal impact on the environment. Samples included fruits, leaves, roots, flower buds, and young shoots, depending on the plant's culinary use. Notes documented the traditional context of plant use as described by informants.

Herbarium specimens were pressed, oven-dried at 40°C for two weeks, and mounted on Herbarium sheets for deposition at the University Tun Hussein Onn (UTHM) Herbarium. Detailed data, including location, vegetation, habitat description, local plant names, and digital photographs highlighting morphological features, were recorded at each field site. Plant identification involved consulting field guides and experts, as well as using tools like PlantSnap, iNaturalist, and PlantNet. Dichotomous keys and comparisons with existing herbarium specimens further ensured accurate identification. A variety of plants used in Jakun traditional cuisine were documented, such as *Manihot esculenta* (Hubik), *Pentaphragma begoniaefolium* (Basung baning), and *Eryngium foetidum* (Kederi), highlighting parts used like fruits, leaves, roots, flower buds, and young shoots for various culinary purposes.

2.5 Data Analysis

A list of plants used for the traditional cuisine and their related usage of the plants was compiled in the table. All the data from interviews was transcribed and analyzed qualitatively.

3. Result and Discussion

3.1 Backgrounds of key informants

A total of three informants were interviewed to document the traditional cuisine of the Jakun community in Kampung Peta based on some plants, focusing on the plants and ingredients used, cooking methods, cultural

practices, and the role of food in their daily lives. The three key informants consist of two females, aged 37 and 52 years old, and 1 male, aged 38 years old. In common, they practiced traditional cuisine for at least 20 years and gained knowledge of the cooking uses of plants from self-experiences, observations, and through their parents. They have experience and always cook traditional dishes on festive days, special occasions, and regular days.

3.2 Ethnobotanical Knowledge of Plants for Traditional Cuisine

From interviews conducted with the Jakun community in Kampung Peta, 11 plant species were documented as being integral to their traditional cuisine. These plants, representing diverse families and ecological roles, range from perennial shrubs like *Manihot esculenta* (cassava), cultivated for its starchy roots and edible leaves, to tropical herbs such as *Eryngium foetidum* (culantro) and *Persicaria odorata* (Vietnamese coriander), valued for their aromatic and culinary properties. Other plants include *Etlingera elatior* (torch ginger), known for its tangy flower buds, and *Nepenthes mirabilis* (pitcher plant), whose natural pitchers are used as cooking vessels. The species exhibit various growth forms, including shrubs, vines, ferns, and herbs, each adapted to specific ecological niches within the tropical environment.

Similar findings have been reported among other Orang Asli groups, such as the Temiar and Semai, who also rely on native flora for their culinary and medicinal practices. These shared practices underscore the deep interdependence between indigenous communities and their local environments. Cassava (*Manihot esculenta*) holds particular importance in Jakun cuisine, serving as a versatile staple ingredient. It provides essential carbohydrates and is well-suited for cultivation in the region's tropical environment. Its role in food security among indigenous groups has been highlighted in studies by WIPO (2012), emphasizing cassava's resilience to environmental challenges. Similarly, the use of *Nepenthes mirabilis* as a natural cooking vessel exemplifies sustainable culinary practices that align with conservation principles [12].

Modernization has significantly influenced the preparation of traditional cuisine among the Jakun community. Traditional tools crafted from forest resources and reliance on firewood have largely been replaced by modern utensils such as knives, blenders, gas stoves, and cookware. These advancements have reduced the time and effort required for food preparation, although they also represent a departure from ancestral culinary practices. Despite these changes, the cultural significance of these traditional dishes persists, reflecting the community's heritage.

The conservation statuses of the documented species vary. Commonly cultivated plants like cassava and Vietnamese coriander are classified as Least Concern (LC). Other species (Table 1), including *Eryngium foetidum*, *Etlingera elatior*, and *Nepenthes mirabilis*, are also considered LC but face threats from habitat loss and trade. Less-studied species like *Elettariopsis curtisii*, *Pentaphragma begoniaefolium*, and *Phrynium pubinerve* may be at risk due to deforestation and habitat destruction. While cultivated species thrive, the wild populations of some plants require conservation efforts to mitigate the effects of overharvesting and environmental degradation.

Table 1 List of plants

No	Scientific name	Local (Jakun) name	Part used
1	<i>Manihot esculenta</i>	Hubik	Fruits and leaves
2	<i>Pentaphragma begoniaefolium</i>	Basung baning	Leaves
3	<i>Matteuccia struthiopteris</i>	Pucuk kokol	Young leaves
4	<i>Elettariopsis curtisii</i>	Daun selawat	Leaves
5	<i>Eryngium foetidum</i>	Kederi	Leaves and Roots
6	<i>Etlingera elatior</i>	Kantan	Flower buds
7	<i>Scorodocarpus borneensis</i>	Kulim	Fruits
8	<i>Oncosperma horridum</i>	Bayas	Young shoots
9	<i>Nepenthes mirabilis</i>	Sentoyot	Leaves
10	<i>Phrynium pubinerve blume</i>	Pokok lerek	Leaves
11	<i>Persicaria odorata</i>	Daun kesum	Leaves

3.3 The Jakun's Culinary Practices: Back to Basics

The Jakun community in Kampung Peta's cuisine is heavily impacted by its geographical and historical ties to Endau Rompin's woodland and riverine surroundings. Their dietary habits are influenced by their reliance on natural resources such as fish, forest flora, and wildlife. Agricultural knowledge, particularly rice growing, is fundamental to their way of life, showing the community's strong appreciation for the land. According to Jakun beliefs, the land is shared with spirits and mistreating it may result in calamity. This closeness to their surroundings is reflected in their culinary practices and cultural traditions.

The Jakun diet relies heavily on staple foods such as *Cassava*, rice, and sweet potatoes. These starchy crops give year-round energy and were traditionally grown by the community to feed their family. In the past, the Jakun people used paddy cultivation to produce rice, growing kinds such as *Padi Dokong* (yellow and lumpy), *Padi Jarum* (needle-tipped grains), and *Padi Lanjut* (purple sticky rice). They also farmed *Padi Tekepeh* (tiny, fine grains) and *Padi Huma* (hill rice), demonstrating their diversified agricultural background.

Traditional paddy processing tools included woven baskets (*Bakul Peralang*) for transporting seeds, wooden mortars (*Lesung kayu*) for pounding rice, and bamboo sifting trays (*Nyiru-endang*) for separating husks. The iron paddy cutter (*Penuai Padi*) was used to harvest. These instruments demonstrate the community's inventiveness in using natural resources for food preparation. Although labor-intensive, these procedures ensured that rice was properly processed for consumption.

The traditional rice processing procedure included four major steps: drying, pounding, winnowing, and sorting. The harvested rice was sun-dried to eliminate moisture and impurities before being pounded in the foot or hand mortars to separate grains from husks. Winnowing, often done by women, employed woven trays to remove husks and small debris from rice with expert tossing. The final process was sorting, which involved hand-separating unbroken grains from broken ones to produce high-quality rice.

While ancient practices are still part of Jakun culture, modern equipment and comforts have mostly superseded them. The transition from traditional to modern tools, as observed in the Jakun community, mirrors trends seen in other Orang Asli groups. The introduction of gas stoves, knives, blenders, and modern cookware has streamlined food preparation but also led to a gradual decline in ancestral knowledge [13]. Despite these changes, the preservation of traditional recipes such as *Nasik Randau* and *Keket Daging* indicates a continued commitment to cultural heritage.

3.4 Traditional Cuisine of The Jakun Community in Peta

The Jakun community in Kampung Peta's traditional food displays its reliance on local resources and cultural history. *Nasik Randau* (Fig. 2) is a distinctive dish made from rice and cassava that is served for both celebratory occasions and ordinary meals. The recipe is simply prepared by cooking rice and cassava with salt until tender, resulting in a nourishing meal passed down through generations. Its preparation reflects the community's reliance on basic meals that are readily available and simple to prepare.



Fig. 2 Nasik Randau

Keket Daging, (Fig.3) a thick soup, is another important dish that demonstrates the Jakuns' usage of forest resources. This meal, which combines beef, cassava, and indigenous spices like as lemongrass, wild cardamom, and Java coriander, is a staple of festivities and rituals. Meat and cassava are boiled and seasoned in a thick stock, with additional herbs added for flavour. This dish highlights the community's hunting traditions and inventive use of cassava as a main ingredient.



Fig. 3 Keket Daging

Sayur Hubik, (Fig..4) a cassava-based vegetable soup, is a favourite at gatherings and feasts. It consists of a mixture of vegetables, cassava, and optional ingredients such as chicken or anchovies, seasoned with turmeric, kulim fruit, and black pepper. The meal is made by frying shallots and garlic, boiling cassava and vegetables, and then combining the flavours into a thick, nourishing soup. This recipe exemplifies the Jakun's ability to use a range of local food and spices to prepare nutritious meals.



Fig. 4 Sayur Hubik

Finally, *Ikan Teum* (Fig..5) consists of small fish wrapped in *lerak* leaves, seasoned with a mixture of turmeric, chillies, garlic, and other local herbs, and grilled to perfection. This meal illustrates the Jakun people's reliance on rivers for food. The use of natural wrapping materials such as *lerak* leaves, as well as the wood-fired cooking method, demonstrate their commitment to sustainability and the environment. Together, these traditional recipes demonstrate the Jakun community's resourcefulness and devotion to its cultural roots.



Fig. 5 Ikan Teum

4. Conclusion and Recommendations

The study of Jakun culinary habits in Kampung Peta reveals a wealth of ethnobotanical knowledge as well as traditional eating practices that are deeply established in the region. However, limitations such as reliance on three main informants, a particular village, and potential influences from modernization restrict the range of conclusions. Future research should address these limitations by increasing the sample size to incorporate more different perspectives, visiting additional Jakun regions to capture culinary diversity, and using updated environmental data to represent recent ecological changes.

Research should also look at the phytochemical qualities of plants used by the Jakun community to highlight their nutritional and therapeutic value, which will assist long-term culinary and health uses. Documenting traditional knowledge through digital repositories, workshops, and cultural events can help to engage future generations while also preserving cultural legacy. Conservation initiatives, such as sustainable harvesting, habitat restoration, and agroforestry are critical for preserving fragile plant species like *Nepenthes mirabilis*. Furthermore, boosting eco-tourism activities like foraging tours and traditional cook demonstrations can provide economic incentives for conservation while also encouraging cultural appreciation. By resolving these issues, future studies on Jakun's culinary practices can gain legitimacy and influence, assuring the preservation of their cultural legacy and biodiversity.

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Conflict of Interest

Authors declare that there is no conflict of interest regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Salmysya Naziera Sham, Siti Fatimah Sabran; **data collection:** Salmysya Naziera Sham; **analysis and interpretation of results:** Salmysya Naziera Sham, Siti Fatimah Sabran; **draft manuscript preparation:** Salmysya Naziera Sham, Siti Fatimah Sabran. All authors reviewed the results and approved the final version of the manuscript.

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