

Cultural identity, halal assurance and sensory authenticity in plant-based meat adoption: Extending the Theory of Planned Behaviour in a Muslim-majority economy

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ABSTRACT

The rising consumption of red and processed meat among Malaysian youth has contributed to increasing rates of obesity, diabetes, and cardiovascular diseases, prompting interest in plant-based meat products as a healthier and more sustainable alternative. However, adoption remains limited due to sensory, cultural, economic, and informational barriers. Therefore, this study examines the factors shaping Malaysian youths' consumption of plant-based meat products, focusing on how their perceptions and motivations influence this behavior. A qualitative research approach was employed, involving in-depth interviews with 19 informers aged 18–29 from diverse public and private higher education institutions across Malaysia. Face-to-face interviews were conducted using semi-structured questions, and the data were thematically analyzed using Atlas.ti. Findings revealed that perceptions are primarily shaped by sensory expectations, particularly the similarity of taste and texture to conventional meat, concerns about processing and nutritional integrity, cultural and religious identity, notably Halal compliance and meat-centric food traditions, as well as limited awareness or misconceptions. Motivations included curiosity driven by digital exposure, health and wellness considerations, environmental and animal welfare ethics, social influences from peers and family, and significant barriers related to high cost and limited accessibility, especially in rural areas. Overall, while Malaysian youth recognize the ethical, health, and environmental benefits of plant-based meat products, actual consumption is contingent upon overcoming practical and cultural challenges. In conclusion,

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broader acceptance of plant-based meat products in Malaysia requires stakeholders to prioritize sensory authenticity, ensure affordability, obtain Halal certification, and develop culturally resonant messaging that aligns with local food identities.

1. INTRODUCTION

Plant-based diets, which emphasize vegetables, legumes, grains, nuts, and seeds, have consistently been associated with reduced risks of obesity, cardiovascular disease, type 2 diabetes, and certain cancers (Gupta et al., 2022; Bianchi et al., 2022). Within this broader dietary pattern, plant-based meat (PBM)—products formulated primarily from protein sources such as soy, wheat, and peas—has gained significant global traction as an alternative to conventional animal-based meat. These products are engineered to replicate the sensory characteristics of meat, including taste, texture, and appearance, through advanced processing technologies, thereby offering potential health, environmental, and ethical benefits (Dai et al., 2022; Wang et al., 2022).

Globally, younger consumers have emerged as early adopters of PBM products. Compared to older cohorts, youth demonstrate greater openness to dietary innovation and are often motivated by health, environmental sustainability, and ethical considerations (Bassaganya-Riera et al., 2021; Raptou et al., 2024). According to the World Health Organization (2021), “youth” refers to individuals aged 15–24, whereas in Malaysia, the Youth Societies and Youth Development Act defines youth more broadly as those aged 15–40 (Faizah, 2007). This demographic group plays a pivotal role in shaping future food trends due to their size, purchasing power, cultural influence, and receptivity to global dietary shifts.

In Malaysia, the rising consumption of red and processed meat among youth has been linked to increasing rates of obesity, diabetes, and cardiovascular diseases (Boonchooduang et al., 2019; Iqbal et al., 2020). Despite the health, environmental, and ethical benefits of PBM, its adoption remains limited. Barriers identified include cultural preferences for meat-centric diets, high product prices, scepticism about sensory authenticity, and low awareness of nutritional and environmental advantages (Drewnowski et al., 2020; Lee, 2023; Zhong et al., 2023). Nutritional concerns regarding micronutrient bioavailability (e.g., iron, vitamin B12) and the level of processing have also been reported (Alcorta et al., 2021; Labba et al., 2022).

Recent research has deepened understanding of these dynamics. A comprehensive review of global consumer studies highlights how acceptance of PBM is shaped by multi-dimensional factors, including sensory quality, perceived healthiness, environmental values, and economic considerations (dos Santos et al., 2024). Empirical evidence shows that price rationality, technical safety, and flavour richness are principal determinants of consumer purchasing decisions (Shen et al., 2024). Among younger consumers, motivations are often rooted in values, lifestyle orientation, and perceived consequences, underscoring the need to examine this segment distinctly (Sogari et al., 2025). Moreover, research indicates that resistance to plant-based diets—particularly when anchored in moral identity, cultural traditions, or social norms—

remains underexplored in non-Western contexts (Onwezen et al., 2025). Together, these studies signal both the maturity of global PBM research and the existence of significant context-specific gaps.

While a growing body of literature has examined PBM from technological, nutritional, environmental, and market perspectives (Andreani et al., 2023; Luciano et al., 2019), studies focusing on Malaysian youth remain scarce. Existing Asian research has primarily addressed technological innovation and broad consumer trends, with limited exploration of how sensory expectations, cultural identity, religious requirements (e.g., Halal), social influence, and economic realities intersect to shape youth perceptions and motivations. Given Malaysia's multicultural society, strong culinary heritage, and majority Muslim population, it is reasonable to expect that youth attitudes towards PBM will be influenced by unique combinations of religious, sensory, and cultural factors not fully captured in Western-centric studies.

Understanding these perceptions and motivations is critical for several reasons. First, youth are influential change agents whose dietary choices can shape broader societal trends through peer networks, social media, and household consumption patterns. Second, shifting youth dietary habits towards PBM can support Malaysia's public health strategies and sustainability commitments, including contributions to several United Nations Sustainable Development Goals (SDGs). Third, industry stakeholders can leverage such insights to develop culturally resonant products, effective marketing strategies, and inclusive policy interventions that align global innovation with local identities.

Therefore, this study aims to examine the factors influencing Malaysian youths' perceptions and motivations regarding the consumption of plant-based meat products. By employing a qualitative research design, this study explores the sensory, cultural, economic, and informational dimensions shaping PBM consumption, addressing a critical gap in the literature and offering insights for both academic scholarship and practical application within Malaysia's evolving food landscape.

2. LITERATURE REVIEW

Plant-based meat products' sustainable and ethical alternatives to conventional meat consumption drive global interest. Plant-based meat products mimic traditional meat's taste, consistency, and appearance (Ismail et al., 2020). These products, made from wheat gluten, legumes like chickpeas and soybeans, and mycoproteins, offer a variety of protein alternatives to animal-based sources (Mihalache et al., 2022). Plant-based meat products have gone from niche to mainstream in recent years. American companies like Beyond Meat have introduced plant-based meat substitutes that are gaining popularity (Szczebyło et al., 2019).

2.1 Plant-Based Meat Products

The plant-based meat market in Malaysia and other countries, like Nanka, a plant-based food company, is growing due to rising consumer awareness of health and environmental issues and the wide availability of plant-based meat substitutes (Blézins Moreira et al., 2021). Li et al., (2022) found that social media marketing has influenced younger people's perception and purchase of plant-based meats. To improve plant-based meat product acceptability, producers have identified flavour issues and the need for ongoing taste and texture improvements (Wang et al., 2022). Recent research shows that plant-based meat sales are rising, especially among younger consumers who prefer it to conventional meat (Li et al., 2022). Plant-based alternatives are driven by customer preferences and concerns about the environmental impact of traditional meat production (Zhao et al., 2022). This evidence highlights the growing relevance of plant-

based meat consumption among youth in Malaysia, aligning closely with this study, which aims to explore the perceptions and motivations driving young consumers' choices in this evolving market.

2.2 Plant-Based Meat Products Consumption

The factors that affect plant-based meat consumption are complex. Health and other benefits are the main reasons people choose plant-based meat substitutes. Hagmann et al., (2019) stated that choosing plant-based foods is mainly driven by health concerns like reducing chronic illness risk. Plant-based foods also improve weight management and cardiovascular health, especially in youth (Havermans et al., 2021). Sustainability and environmental concerns also influence plant-based meat substitute consumption. According to research by Austgulen et al., (2018), people increasingly choose plant-based alternatives due to their lower environmental impact. Scholars strongly recommend switching to plant-based foods for sustainable and healthy diets (Ghammachi et al., 2022).

Plant-based meats are usually more expensive (Reis, 2022). In Malaysia, Nanka sells plant-based patties for RM18 per packet of four 80-gram vegan patties. Chicken and beef patties cost RM19 and RM20, respectively, more than traditional meat options. Traditional meats usually cost less than RM10 per serving (Lee, 2021).

Peer pressure and social factors also affect plant-based meat consumption. Research shows that social norms and peer relationships influence dietary choices, particularly plant-based diets (Hwang et al., 2020). Social, cultural, ethical, economic, marketing, health, and environmental factors affect how widely accepted plant-based meat substitutes are. The diverse factors influencing plant-based meat consumption is particularly pertinent to this study as it seeks to comprehend the perceptions and motivations of Malaysian youth concerning plant-based meat products in light of these factors.

2.3 Perception and Motivation of Plant-Based Meat

Perception and motivation strongly influence consumers' choices of plant-based meat alternatives. Many factors influence plant-based meat consumption. The Theory of Planned Behaviour (TPB) states that attitudes, subjective norms, and perceived behavioural control affect intents and behaviours (Ma et al., 2022). A positive view of plant-based meat alternatives increases consumer desire to buy them (Ma et al., 2022). Animal welfare, health, environmental, and moral concerns drive plant-based meat product growth (Younis et al., 2022).

Taste, texture, and quality influence plant-based meat adoption. To appeal to plant- and animal-eaters, plant-based meat substitutes mimic the taste, texture, and flavour of conventional meat products (Wang et al., 2022). Consumer acceptance and consumption of plant-based meat products depend on textural refinement. Research has focused on improving food texture by studying food components, processing conditions, and evaluation methods (Xia et al., 2022).

Education, awareness, media, and advertising have changed the attitudes toward plant-based meat. Educational and media campaigns about plant-based diets' health and environmental benefits can change consumer attitudes towards plant-based meat alternatives (Sharma et al., 2021). Plant-based meats' taste, sustainability, and health benefits may increase consumer acceptance and commercial growth (Boukid, 2020).

Understanding these perceptions and motivations is crucial for this, as it aims to investigate how these factors influence plant-based meat product consumption among youth in Malaysia, particularly regarding their attitudes, social influences, and the impact of educational initiatives.

2.4 Consumption Patterns of Plant-Based Meat among Youth

As plant-based meat substitutes become more popular, their demand rises (Tóth et al., 2021). Home, restaurants, and social events affect youth's plant-based meat consumption (Ohlau et al., 2022). Research indicates that individuals who regularly consume plant-based foods have opposing views on meat and are likelier to consume more since they care about the environment (Jeżewska-Zychowicz et al., 2024). Awareness campaigns promoting meat reduction and plant-based alternatives have also influenced consumer choices (Fonmboh et al., 2021).

Malaysian youth and other age groups have different tastes and behaviours regarding plant-based meat eating (Zayadi, 2021). Millennials' flexitarian diets emphasise plant-based meals, influencing plant-based meat consumption (Knaapila et al., 2022). Reducing meat consumption by switching to plant-based meats may reduce conventional meat production's environmental and health impacts (Katare et al., 2022). However, cost, flavour, and convenience still hinder plant-based meat adoption (Peacock, 2024). Plant-based meat promotion uses message strategies to improve attitudes and willingness to pay (Carfora et al., 2022). Cultured and plant-based meat are becoming sustainable protein sources as demand for alternative proteins rises (Kamalapuram et al., 2021). The resource-intensive nature of animal production can be reduced by switching to plant-based diets (Karatassios et al., 2022).

These consumption patterns among youth are highly relevant to current study, as they highlight the factors influencing plant-based meat product choices among young Malaysians. By examining these patterns, this study aims to uncover the motivations and barriers specific to Malaysian youth, thereby providing insights into enhancing the acceptance and consumption of plant-based meat products in this demographic.

2.5 Theory of Planned Behaviour

A popular psychological theory, the Theory of Planned Behaviour (TPB), explains human behaviour by considering attitudes, subjective norms, and perceived behavioural control (Nardi et al., 2019). Attitudes are an individual's positive or negative assessment of behaviour, subjective norms are societal pressures, and perceived behavioural control is the perceived ease or difficulty of a behaviour. Research suggests that the Theory of Planned Behaviour (TPB) can help explain food choices, such as organic food consumption (Al-Swidi et al., 2014), meat consumption (Çoker et al., 2020), and plant-based diets (Graça et al., 2015). When studying plant-based meat consumption, attitudes, subjective norms, and perceived behavioural control influence intentions and behaviours. Research shows that people's attitude towards plant-based meat, social norms surrounding its consumption, and perceived control over plant-based options affect their willingness and intention to eat more plant-based (Graça et al., 2015). Studies show that attitudes, subjective norms, and perceived behavioural control strongly influence plant-based meat consumption (Graça et al., 2015). These criteria have been used to predict and explain consumer preferences and decisions for plant-based alternatives (Chen, 2023).

The insights gained from the Theory of Planned Behaviour are particularly pertinent to this study on the consumption of plant-based meat products among Malaysian youth. They offer a framework for comprehending how young consumers' attitudes, social influences, and perceived control over their dietary

choices affect their willingness to embrace plant-based alternatives. This research utilises the Theory of Planned Behaviour (TPB) to identify specific attitudes and social norms influencing Malaysian youth's consumption patterns of plant-based meat products.

2.6 Relevant Studies on Plant-Based Meat Consumption in Malaysia and Asia

A study in Malaysia found that younger urban adults prefer chicken, eggs, and dairy, while red meat consumption has notably decreased (Khusun et al., 2022). This trend aligns with findings from other Asian countries, where about 60% of young consumers in Japan and China have positive perceptions of alternative meats, indicating a growing acceptance of plant-based diets (Huang, 2023). Critical motivations for this shift among Malaysian youth include health concerns, as many cite health benefits as a primary reason for reducing meat consumption (Lentz et al., 2018). Environmental sustainability also plays a significant role, with approximately 65% of informers indicating a greater likelihood of purchasing plant-based meats if informed of their lower environmental impact (Wang et al., 2022).

Social influences significantly impact dietary choices, with around 75% of young adults stating that their peers' eating habits affect their intake of plant-based meals (Sharps et al., 2023). The market for plant-based alternatives is rapidly growing, evidenced by over 6,485 new product launches since 2015, reflecting a shift towards mainstream acceptance. Additionally, there is increasing awareness of the ethical implications of meat consumption, with approximately 55% of youths expressing concerns about animal welfare (Safdar et al., 2022; Boukid, 2020).

These data are crucial for current research on plant-based meat consumption among Malaysian youth, as they highlight key factors influencing young consumers' dietary choices. By exploring perceptions, motivations, and social influences, this study aims to deepen the understanding of how they shape consumption patterns and contribute to discussions on dietary transitions and sustainability.

3. METHODOLOGY

This study adopted a qualitative research design to explore Malaysian youths' perceptions and motivations regarding plant-based meat (PBM) consumption. A qualitative approach was deemed appropriate for generating in-depth insights into the lived experiences, cultural contexts, and personal attitudes that shape PBM consumption behaviour.

The study employed purposive sampling to select informers aged between 18 and 29 years, representing the youth demographic defined by the Malaysian Youth Societies and Youth Development Act. Nineteen informers were recruited from a range of public and private higher education institutions across Malaysia, including Universiti Teknologi MARA (Puncak Alam, Pulau Pinang, and Shah Alam), International Islamic University Malaysia, Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Malaysia Pahang Al-Sultan Abdullah, Universiti Tun Hussein Onn Malaysia, UNITAR International University, Sunway College, University of Technology Sarawak, and Lincoln University College. This diverse institutional representation ensured variations in cultural, academic, and socio-economic backgrounds, enriching the data.

Data were collected through in-depth, semi-structured interviews, which allowed informers to articulate their perceptions, motivations, and experiences related to PBM. The interviews were conducted face-to-face in English or Bahasa Malaysia, depending on informer preference, to facilitate comfort and

authenticity. Each interview lasted between 30 and 60 minutes and was audio-recorded with informed consent. Open-ended questions were used to encourage rich and detailed responses while maintaining flexibility to probe emerging themes.

Interview recordings were transcribed verbatim and analysed thematically using ATLAS.ti, a qualitative data analysis software. Thematic analysis followed Braun and Clarke's (2006) six-phase framework: familiarisation, coding, theme development, reviewing, defining, and reporting. Coding was both inductive and deductive, guided by the Theory of Planned Behaviour (TPB) to capture attitudinal, normative, and control-related factors while remaining open to emergent themes specific to Malaysian cultural contexts. The trustworthiness of thematic analysis was further enhanced by following the guidance of Nowell et al. (2017) to ensure rigour and transparency. To ensure the trustworthiness of the study, several strategies were employed in line with Lincoln and Guba's (1985) criteria.

The study established credibility through data triangulation by engaging informers from diverse backgrounds, employing iterative questioning techniques, and conducting peer debriefing sessions with qualitative research experts. Transferability was ensured by providing thick descriptions of informers' contexts and lived experiences, allowing people to assess the applicability of the findings to other settings. To maintain dependability, the researcher created a clear audit trail that included interview guides, field notes, coding frameworks, and reflexive memos, thereby ensuring transparency in all analytical decisions. Confirmability was strengthened through continuous reflexivity, with the researcher acknowledging his positionality and minimising potential bias by engaging in regular peer reviews and maintaining reflective journals. Collectively, these trustworthiness strategies align with contemporary qualitative research recommendations (Korstjens & Moser, 2018), ensuring methodological rigour throughout all stages of the study.

Ethical considerations were upheld throughout the study. Informers received detailed information about the study objectives, procedures, and confidentiality. Informed consent was obtained, and data were anonymised to protect informer identity. The research protocol was reviewed and approved by the university's Research Ethics Committee prior to data collection, in accordance with institutional guidelines and standard qualitative research ethics practices.

4. FINDINGS

This study explored how Malaysian youths in tertiary institutions perceive and are motivated to engage with plant-based meat. Through in-depth interviews with 19 informers from diverse ethnic, religious, academic, and geographic backgrounds, two overarching domains emerged which is perceptions and motivations. Within each domain, multiple interrelated themes and sub-themes surfaced, revealing a complex interplay of sensory, economic, cultural, ethical, and social factors that shape attitudes and behaviors.

4.1 Perceptions of Plant-Based Meat Products

Malaysian youths hold nuanced and contextually grounded perceptions of plant-based meat products, shaped by sensory expectations, cultural identity, religious values, and practical realities. Their understanding goes beyond simplistic definitions, revealing a layered cognitive map where innovation, tradition, ethics, and economics intersect.

Sensory Expectation: Taste and Texture Similarity

For Malaysian youths, plant-based meat is primarily evaluated through a sensory lens, where taste, texture, and appearance are compared against conventional meat embedded in their culinary traditions. The product's acceptance depends not on originality, but on how convincingly it replicates familiar sensory experiences. As one informer explained;

"When I hear 'plant-based meat,' I think of food made to look and taste like meat, but it's made from plants." (Informer 1).

This perspective reflects a realistic expectation that plant-based meat products options should deliver the same satisfaction as meat, without ethical compromise. Beyond flavor, the replication of texture emerges as equally critical. In Malaysia's food culture, where mouthfeel is an integral part of the dining experience, consumers are especially sensitive to how well plant-based meat products mirror the textural qualities of meat. As expressed by another informer;

"I can think of plant-based meat, which is made from plants to imitate conventional meat. In my understanding, plant-based meat not only aims to replicate the taste but also the texture." (Informer 4)

This highlights how the technological effort to simulate texture is perceived as central to product authenticity. The framing of plant-based meat products as a carefully designed imitation rather than a complete substitute further reinforces this perspective. One informer defined it as;

"The term 'plant-based meat' describes meat substitutes that mimic the flavour, texture, and appearance of typical meat using plant-derived substances such as soy, pea protein, or mushrooms." (Informer 13)

Such descriptions position plant-based meat products as a bridge between tradition and innovation, valued for its ability to preserve sensory familiarity while offering a more ethical alternative. The next subsection highlights the recognition as a practical meat alternative.

Practical Utility and Halal Compliance

Beyond sensory similarity, Malaysian youths also view plant-based meat products as a functional substitute, particularly in situations where conventional meat is either inaccessible or raises ethical concerns. For example, one informer noted;

"Even for like Muslim and we are abroad overseas it can be hard to find Halal meat so plant-based meat could be a good substitute". (Informer 9)

This illustrates the product's practical utility, especially in fulfilling religious dietary requirements when Halal meat is not readily available.

Plant-based meat products are also associated with accommodating lifestyle choices such as vegetarianism and veganism. As another informer explained;

"I think plant-based meat is an alternative made from plants. It is suitable for vegetarians and vegans." (Informer 3)

This perspective highlights its role in supporting dietary inclusivity, allowing diverse groups to participate in shared meals without compromising personal or ethical commitments. In other cases, the product is framed more neutrally, without a strong ethical or lifestyle emphasis. One informer reflected;

“The first thing that comes to mind when hearing the term is plant-based food, an alternative to animal-based meat such as chicken, beef, or lamb.” (Informer 18)

Here, plant-based meat products are understood simply as an available option within the wider spectrum of food choices, valued for practicality rather than moral or cultural significance. The next subsection highlights the concerns about processing and nutritional integrity

Health, Processing and Nutritional Concerns

While plant-based meat products are often welcomed for its sensory and practical value, many Malaysian youths remain cautious about its health implications. A recurring concern relates to the degree of processing involved. As one informer noted;

“However, it can be highly processed, with added ingredients like preservatives and salt.” (Informer 17)

This comment reflects a broader health-conscious mindset, where the “plant-based” label does not automatically translate to perceptions of wholesomeness, especially when additives are present.

Nutritional adequacy also emerges as a key issue. One informer shared;

“The disadvantage of consuming plant-based products is that you may lose some essential nutrients needed by your body.” (Informer 12)

This highlights an underlying scepticism that, despite being marketed as healthier or more sustainable, such products may fail to deliver the same nutritional balance as conventional meat.

In addition to concerns over processing and nutrients, issues of cost and food safety further shape perceptions. As expressed by another informer;

“Plant-based meats can be more expensive and may contain allergens like soy or gluten.” (Informer 15)

This perspective underscores how dietary restrictions and affordability become practical barriers, reinforcing that acceptance is influenced by more than just ethics or sensory experience. The next subsection highlights the cultural and religious influences.

Cultural and Religious Influences

Religious and cultural identity plays a pivotal role in shaping Malaysian youths’ openness to plant-based meat, often mediating perceptions of its appropriateness and necessity. For some, Halal compliance makes plant-based meat products an acceptable option, yet cultural preferences for conventional meat continue to dominate. As one informer expressed;

“As a Muslim, plant-based meat aligns with Halal requirement, but as a Malaysian, I feel like we Malaysian are meat lovers.” (Informer 9)

This highlights the tension between faith and food culture, while Halal status enables acceptance, deeply rooted meat-eating traditions remain a strong counterforce. For others, the absence of religious prohibition diminishes the motivation to adopt plant-based alternatives. As one Muslim informer explained;

“From a religious perspective, I am Muslim, and Islam does not forbid me from consuming meat, so I feel there is no need or necessity to buy and use plant-based meat products.” (Informer 2)

Here, Halal is acknowledged as a baseline requirement, but not a sufficient reason for substitution, underscoring how permissibility does not always translate into preference.

Cultural and ethnic food traditions also set high standards for acceptance. One informer revealed;

“As someone who is Chinese, my cultural background may emphasize the importance of authentic flavours and textures plant-based alternatives might be viewed sceptically unless they closely mimic real meat.” (Informer 14).

This reflects the centrality of culinary authenticity in Chinese cuisine, where substitutes are evaluated closely against established sensory benchmarks. Similarly, native and regional identities shape expectations around meat consumption. As another informer shared;

“As someone from a Dayak background in Sarawak, meat plays a significant role in meals and celebrations.” (Informer 15)

This illustrates how meat is embedded not only in daily diets but also in communal rituals, making plant-based alternatives appear unfamiliar unless they are culturally adapted. The next sub-subsection highlights the misconceptions and limited awareness.

Misconceptions and Awareness Gap

Despite growing interest, some Malaysian youths hold misconceptions or demonstrate limited exposure to plant-based meat products, pointing to gaps in public understanding. For instance, one informer remarked;

“Fake meat. Through my understanding, it's for people who are trying to lose weight or cut down on protein because of illness.” (Informer 14)

This medicalized framing reflects a form of stigmatization, where plant-based meat products are perceived less as a mainstream food and more as a medical or corrective product.

Others show confusion rooted in local food references. As one informer shared;

“At first, when I heard about plant-based meat, I thought it was something like tempeh, but actually, it's not.” (Informer 10)

This reveals how traditional foods such as tempeh act as conceptual schemas, shaping how global innovations are understood and often misclassified.

Limited awareness also varies across cultural and religious communities. As another informer stated;

“In my opinion, some cultures or religions may prefer plant-based meat, but in my culture and religion, we are less exposed to this kind of product.” (Informer 3)

Here, informational inequality emerges as a barrier, suggesting that uneven exposure across communities reduces opportunities for trial and adoption. Summary of key themes on perception of plant-based meat products is presented in Table 1 below:

Table 1. Summary of Key themes on Perception of Plant-Based Meat Products

Domain	Theme	Sub-theme
Perception	Sensory Expectations	Taste/texture similarity, brand variability

Practical Utility	Halal compliance, dietary flexibility
Health & Processing	Nutritional concerns, additive scepticism
Cultural Identity	Meat-eating traditions, ethnic food values
Awareness Gaps	Misconceptions, limited exposure

The next subsection highlights the motivation of plant-based meat products.

4.2 Motivation of Plant-Based Meat Products

Malaysian youths' motivations to engage with plant-based meat products are shaped by a dynamic interplay of personal curiosity, health aspirations, ethical values, and social influences. While environmental and animal welfare concerns resonate with many, these ideals are often weighed against practical realities such as affordability, taste expectations, and cultural food norms. The following findings illustrate how curiosity, care, and context converge to shape willingness to try or adopt plant-based meat products.

Curiosity and Interest in New Food Trends

Curiosity emerges as the strongest initial driver for Malaysian youths' engagement with plant-based meat products, often sparked by digital exposure and a broader interest in culinary exploration. As one informer explained;

"I think the main reason is my curiosity about trying new food innovations." (Informer 3)

This reflects a generational openness to experimenting with new products, positioning plant-based meat products as part of a wider engagement with global food trends.

Social media and online platforms further amplify this curiosity, serving as the main entry point for awareness. As another informer shared;

"My main motivation is definitely the internet; I am curious to know the taste of this product." (Informer 2)

Thus, digital channels, not formal education or traditional advertising, are credited with generating interest and encouraging trial. Beyond taste, curiosity also extends to the science behind plant-based meat products. One informer remarked;

"I would like to learn more about the technological advancements, how they are able to imitate meat, including its mouthfeel and taste." (Informer 4)

This reflects a more analytical form of engagement, where plant-based meat products are valued not only as food but also as an innovation in food technology. The next sub-subsection highlights the health and nutritional benefits.

Health and Nutritional Benefits

Health emerges as a secondary, though significant, motivator for Malaysian youths in considering plant-based meat products, particularly among those with medical or wellness-oriented perspectives. For some, the appeal lies in preventive health. As one informer shared;

"I am motivated to try this product because I want to live a healthier life. Although real meat may taste better, its saturated fat or cholesterol content could affect my health." (Informer 18).

As a medical student, Informer 18 frames plant-based meat products consumption as a proactive investment in long-term well-being.

For others, health-driven motivation is more situational and reactive. One informer explained;

"The main driving factors for me to try plant-based meat products again, would probably be if I want to lose weight. Another reason might be if I'm diagnosed with a health issue" (Informer 12).

Hence, plant-based meat products are considered not as part of everyday eating but as a dietary adjustment in response to specific health concerns.

At the same time, some informer expresses a balanced view, acknowledging both the potential benefits and limitations of plant-based meat products. As one informer noted;

"Plant-based meat can be good generally for all of us, it often has more vitamins and less unhealthy fat." (Informer 17)

Informer 17's perspective highlights cautious optimism; while nutritional advantages are recognized, there is also awareness that heavy processing could compromise health outcomes. The next sub-subsection highlights environmental and ethical concerns.

Environmental and Ethical Concerns

Although curiosity, practicality, and health often dominate, a significant minority of Malaysian youths are motivated by environmental and animal welfare concerns, which they frequently link to personal values. For some, sustainability provides a compelling rationale for choosing plant-based alternatives. As one informer explained;

"It is quite important because eating plant-based meat products can help reduce carbon emission and conserve our water, doing everything we can to help save the planet would be for the best." (Informer 9)

Here, individual consumption is tied to global climate responsibility, illustrating how sustainability is framed as a moral obligation.

Animal welfare also emerges as an influential ethical motivator. One informer shared;

"Yes, I consider animal welfare when choosing plant-based products. I feel better knowing that no animals were harmed." (Informer 1)

This response highlights how emotional satisfaction and compassion become interconnected with food choices, making plant-based meat products an avenue for ethical self-expression.

For others, ethical reasoning is articulated through a more philosophical lens. As one informer stated;

"As humans, we have human rights, and animals also have their own animal rights." (Informer 10).

By framing animal welfare in terms of rights, Informer 10 points to a deeper shift in moral thinking, where food consumption is evaluated not only by taste or health but also by broader principles of justice. The next sub-subsection highlights influence of social circles.

Influence of Social Circles

Social relationships significantly shape how Malaysian youths engage with plant-based meat, with peer and family influence often acting as a catalyst or a barrier, to adoption. For some, shared meals with friends create opportunities to experiment with alternatives. As one informer explained;

“I have friends who don't consume conventional meat because they are vegan. To be respectful, I also choose to consume the same foods as them.” (Informer 4)

This illustrates the role of commensality, where eating together fosters trial, positioning plant-based meat products as a medium for social harmony.

Conversely, limited awareness within one's immediate circle can inhibit exploration. As another informer remarked;

“No, because my friends and family are unaware of these products.” (Informer 3).

In this case, the absence of exposure within trusted social networks results in passive resistance, where curiosity remains dormant without conversation or encouragement.

Family endorsement also emerges as a powerful motivator. One informer revealed;

“If my family or those around me support or recommend this product for a healthier lifestyle, I would be more likely to give it a try.” (Informer 18).

Here, familial approval operates as a trusted signal, often carrying more weight than advertising or digital reviews in influencing consumption choices. The next sub-subsection highlights price and accessibility as barrier.

Price and Accessibility as Barriers

Despite curiosity and ethical interest, enthusiasm for plant-based meat among Malaysian youths is often tempered by economic and logistical realities. Cost emerges as a primary obstacle, particularly for students with limited financial resources. As one informer explained'

“Plant-based meat products are quite expensive, based on what I know.” (Informer 2)

This reflects the tension between ethical intentions and financial precarity, where affordability ultimately constrains choices.

Geographic accessibility further compounds the challenge. As another informer iterated;

“I live in a rural area, and most of these products are only available in luxury malls and large supermarkets.” (Informer 7)

Thus, plant-based meat products are perceived as an urban, elite product, associated with modern retail spaces and unavailable to many outside metropolitan centers.

For some, cost concerns are intensified by doubts about sensory satisfaction. One informer remarked;

“I would not consider consuming it in the future as in the current state of the economy, I could not afford it and the taste has yet to want me to seek for it.” (Informer 19)

This perspective underscores the dual barriers of affordability and palatability: unless both price and taste improve, adoption remains unlikely. Summary of key themes on motivation of plant-based meat products is presented in Table 2 below:

Table 2. Summary of Key themes on Motivation of Plant-Based Meat Products

Domain	Theme	Sub-theme
Motivation	Curiosity & Innovation	Tech interest, digital influence
	Health & Wellness	Preventive care, medical needs
	Ethics & Environment	Animal welfare, climate action
	Social Influence	Peer/family norms, commensality
	Economic Realities	Price sensitivity, rural inaccessibility

5. DISCUSSION

This study reveals that Malaysian youths hold nuanced and contextually grounded views toward plant-based meat products, shaped by an interplay of sensory expectations, economic realities, cultural identity, ethical values, and social dynamics. Their perceptions are not formed in isolation but are deeply embedded in Malaysia's rich culinary traditions, religious norms, and lived experiences as students navigating tight budgets and evolving food landscapes.

A central finding is that plant-based meat products is primarily evaluated through a sensory benchmark, its ability to replicate the taste, texture, and mouthfeel of conventional meat. This evaluation is not merely a preference but a cultural imperative. In a nation where food is tied to heritage, celebration, and communal identity, alternatives must satisfy deeply ingrained expectations to gain legitimacy. As one informer noted, "the taste will never be exactly the same as conventional meat," highlighting a persistent sensory gap that limits full acceptance. This aligns with global research identifying texture as a key determinant of adoption (Godschalk-Broers et al., 2022), but in Malaysia, sensory expectations carry added weight due to the centrality of flavor in everyday and festive meals across Malay, Chinese, Indian, and Dayak communities.

Motivations to engage with plant-based meat products are layered and often conditional. Curiosity emerges as the strongest initial driver, sparked by digital exposure, peer influence, or culinary experimentation, but is rarely sufficient for sustained consumption. Instead, curiosity opens the door to deeper engagement, where health, environmental concern, and ethical considerations may reinforce interest, provided practical barriers are addressed. Environmental awareness is particularly notable, with many youths demonstrating a clear understanding of how plant-based meat reduces deforestation, water use, and greenhouse gas emissions. Yet this awareness rarely translates into action when cost and taste remain unaddressed, reflecting a pragmatic idealism: youths support sustainability in principle but prioritize affordability and sensory satisfaction in practice.

Price consistently emerges as the most significant barrier across both perception and motivation domains. For students managing limited incomes, the premium cost of plant-based meat products renders it an occasional curiosity rather than a dietary staple. Economic constraints often override ethical or health motivations, revealing a gap between attitude and behavior, a pattern well-documented in consumer research (Lin-Schilstra et al., 2020). Limited accessibility, particularly in rural areas, further reinforces

inequity, positioning plant-based meat products as an urban, elite product rather than a universally viable alternative.

Religious and cultural factors further shape adoption. For Muslim youths, who constitute the majority of informers, Halal certification is essential. Although plant-based meat products are often assumed to be Halal, informers emphasized the need for formal certification due to concerns about processing methods and cross-contamination. This highlights that religious compliance in Malaysia is a foundational requirement rather than a secondary consideration. Simultaneously, strong cultural attachments to meat, captured in statements like “we Malaysian are meat lovers,” create emotional and habitual resistance. Many youths therefore view plant-based meat products as a situational substitute, for example when traveling abroad, rather than a replacement for conventional meat.

Social influence plays a dual role in shaping consumption. Positive encouragement from friends or family, particularly those with vegetarian or vegan lifestyles, can encourage trial through shared meals and mutual respect. Conversely, silence or unfamiliarity within one’s social circle functions as an invisible barrier, reinforcing conventional eating habits by default. This underscores the collectivist nature of Malaysian food culture, where eating is a social act, and dietary change often requires communal validation.

Youths also demonstrate critical nutritional literacy. While some recognize benefits such as lower saturated fat and higher fiber content, others express skepticism regarding processing, additives, and potential nutrient gaps, for example B12 or iron. This balanced evaluation, considering benefits alongside concerns, reflects a move beyond the “health halo” often assumed in marketing (Bogueva et al., 2023). Youths are not passive consumers, they demand transparency, brand consistency, and evidence-based claims.

Collectively, these findings enrich the Theory of Planned Behaviour (Ajzen, 2005) by illustrating how cultural and religious norms intersect with attitudes, subjective norms, and perceived behavioral control in a non-Western context. In Malaysia, intention alone is insufficient, consumption of plant-based meat requires support through affordability, Halal assurance, sensory authenticity, and social normalization.

5.1 Limitations

This study has several limitations. First, as this is a qualitative study and the sample of 19 informers from tertiary institutions limits generalizability to non-student populations or older age groups. Second, the sample is predominantly Muslim and Malay, reflecting Malaysia’s demographic majority but providing fewer perspectives from non-Muslim or non-Bumiputera communities, though efforts were made to include Indian, Chinese, and Dayak voices. Finally, reliance on self-reported data introduces the possibility of social desirability bias, particularly regarding environmental concern or health consciousness.

Despite these limitations, the findings offer valuable insights for stakeholders seeking to promote sustainable protein alternatives in Malaysia. Effective strategies will require more than ethical appeals alone. Success depends on culturally intelligent product design, economic accessibility, Halal integrity, and social integration, ensuring plant-based meat products resonates not only as a global trend but as a locally meaningful choice.

6. CONCLUSION

The perception and motivation of plant-based meat among Malaysian youth is nuanced and influenced by multiple intersecting factors. While the concept is well understood and associated with ethical, health, and environmental benefits, acceptance is tempered by persistent concerns about taste, texture, and cost. Cultural and religious considerations further shape attitudes, revealing that perception is not uniform but deeply embedded in social and personal contexts. Addressing these perceptual barriers through targeted innovation, pricing strategies, and culturally sensitive communication is essential for fostering greater acceptance and integration of plant-based meat into the diets of young Malaysians.

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8. CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest regarding the publication of this paper.

9. AUTHORS' CONTRIBUTIONS

Muhammad Faiz Saedun: Conceptualisation, methodology, formal analysis, investigation, data curation, and writing—original draft; **Rosmaliza Muhammad:** Conceptualisation, supervision, validation, writing—review and editing, and funding acquisition; **Norazmir Md. Nor & Ilhaamie Abdul Ghani Azmi:** Supervision, validation, and writing—review and editing.

10. DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

During the writing process, the authors used ChatGPT, to improve language clarity and readability of this manuscript. All content has been reviewed and approved by the authors, who take full responsibility for the accuracy and integrity of this work.

11. DATA AVAILABILITY/SUPPLEMENTARY MATERIALS

The data that support the findings of this study were collected through qualitative interviews. Selected quotes from informers are presented within the article. Full interview transcripts and raw data are not publicly available due to confidentiality and privacy considerations agreed upon with informers prior to data collection. The complete dataset is available from the first author upon reasonable request, subject to ethical approval and confidentiality constraints.

12. ETHICS STATEMENT

This study was conducted in accordance with the ethical principles governing qualitative research involving human informers. Ethical approval was obtained from the Faculty Ethics Review Committee (FREC) of

Universiti Teknologi MARA (UiTM) prior to data collection. Confidentiality and anonymity of all informers were maintained throughout the research process.

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