The Perspective of Turkish Chefs on Artificial Foods in the Context of Sustainable Gastronomy

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Abstract

This study examines Turkish chefs' attitudes toward artificial foods within the framework of sustainable gastronomy. Although artificial foods are widely discussed in terms of nutrition, food technology, and safety, their evaluation from a gastronomy-focused sustainability perspective remains a significantly underexplored gap. This research addresses this gap by investigating chefs' views on the sustainability, risks, and future potential of artificial foods. A qualitative method was used, involving semi-structured interviews with 20 chefs selected through purposive sampling. Data were analyzed using MAXQDA. The analysis yielded four principal themes and nineteen sub-themes, reflecting chefs' multifaceted perspectives on gastronomy, sustainability, and technological innovation in food production. The findings indicate that many chefs consider artificial foods potentially useful for promoting sustainability, especially in addressing global food challenges such as hunger and food security. However, participants also expressed concerns about potential risks to human health and the preservation of natural food culture. Despite these concerns, most chefs acknowledged that artificial foods could contribute to future food systems by enhancing resource efficiency and helping meet the needs of a growing population. This study provides valuable insights into culinary professionals' perceptions of emerging food technologies. The results may inform food policy development, chef training programs, and industry practices aimed at fostering sustainable and ethical food systems in the face of global challenges.

Keywords: Sustainable gastronomy, Artificial foods, Chef perceptions, Culinary innovation, Sustainability.

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1. Introduction

In recent decades, the transformation of global food systems has accelerated due to escalating ecological pressures, technological advancements, and changing socio-cultural dynamics. Among the most salient developments within this transformation are the growing prominence of sustainable gastronomy and the emergence of artificial foods, both of which address pressing challenges concerning food security, environmental sustainability, and innovation in culinary practices (Arslan et al., 2023; Bonte et al., 2010; Scarpato, 2003). These intertwined domains reflect a broader shift in how societies conceptualize and interact with food—not merely as a source of sustenance, but as a complex socio-ecological construct influenced by cultural identity, technological potential, and ethical considerations (Ataseven & Güneş, 2008; Güneş & Karakaş, 2022).

Within this context, Turkish gastronomy presents a unique landscape for analyzing the reception and integration of artificial foods. Rich in culinary traditions, regional diversity, and a strong emphasis on natural and artisanal ingredients, and Turkish cuisine is generally characterized by deep-rooted cultural practices and localized production systems. However, Turkey is also increasingly exposed to global food innovations, rising consumer awareness, and sustainability-driven reforms in agriculture and tourism. As such, it offers a compelling case study for understanding how chefs as cultural agents interpret and adapt to artificial food technologies within the framework of sustainable gastronomy (Johnstone, (2023).

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This study aims to investigate the attitudes and perceptions of Turkish chefs toward artificial foods by situating their views within the broader discourse of sustainability, innovation, and culinary heritage. The rationale for focusing on chefs is based on their epistemic authority in food practices, their influence on consumer behavior, and their capacity to mediate between emerging technologies and public acceptability (FAO, 2019; Piper, 2015; Barnes, 2017; Bookwala, Dholakia, & Huang, 2022; Saneski, 2023; Solomon, 2015). Furthermore, chefs' decisions about whether and how to incorporate artificial foods into their menus provide insight into the social dynamics of food system transformation.

The theoretical framework underpinning this study integrates perspectives from sustainability studies, technological determinism, gastronomy tourism, and cultural sociology. It acknowledges that food systems are not solely shaped by economic and technological factors, but also by deeply ingrained beliefs, values, and identities (Ericksen, 2008; Mintz & Du Bois, 2002; Fischler, 1988; Douglas, 1966; Bourdieu, 1984). From this perspective, the adoption of artificial foods is not merely a matter of technical feasibility, but also of cultural negotiation, ethical deliberation, and aesthetic judgment (Smith & Marx, 1994; MacKenzie & Wajcman, 1999; Hjalager & Richards, 2002; Hall, Sharples, Mitchell, Macionis, & Cambourne, 2003; Stephens et al., 2018; Bryant & Barnett, 2018; Sexton, Garnett, & Lorimer, 2019).

Methodologically, this research adopts a qualitative approach to capture the nuanced and subjective dimensions of chefs' attitudes. Through semi-structured interviews with chefs operating in diverse culinary settings across Türkiye, the study explores how personal values, professional identities, and external influences (e.g., media, consumer demand, regulations) shape the acceptance or resistance toward artificial foods. Special attention is paid to the chefs' understanding of sustainable gastronomy, their awareness of artificial food technologies, and the perceived alignment or misalignment between the two.

By investigating the complex relationship between artificial foods and sustainable gastronomy from the perspective of chefs—a group uniquely situated at the crossroads of innovation and tradition—this study seeks to contribute to a more nuanced and interdisciplinary understanding of food system transformation. The findings are expected to inform ongoing debates about how to balance ecological imperatives with cultural authenticity, and how to foster responsible culinary innovation in an era of unprecedented environmental and technological change.

2. Literature Review

The concept of sustainable gastronomy has been widely recognized by both scholars and institutions such as the United Nations World Tourism Organization (UNWTO, 2012), which defines it as a culinary approach that takes into account the origins of ingredients, the environmental impact of food production, and the socio-cultural significance of cuisine. It encourages the integration of local, seasonal, and organically produced foods into everyday consumption while promoting biodiversity, minimizing waste, and supporting local economies (Çekal & Doğan, 2022; Egeli et al., 2022). Sustainable gastronomy thus operates at the confluence of environmental responsibility, economic development, and cultural preservation, aligning with the principles of circular economy and the UN Sustainable Development Goals (SDGs).

Concurrently, the growing awareness of the detrimental environmental impacts of conventional agriculture, particularly livestock production, has prompted scientists and entrepreneurs to explore alternative food sources, among which artificial foods have gained notable attention. Artificial foods are generally defined as technologically produced or modified food products that aim to replicate or substitute traditional animal- or plant-based foods with enhanced efficiency and reduced ecological footprint (Bakhtiyar et al., 2011; Zang et al., 2023). These products encompass a range of technologies, including cellular agriculture (e.g., lab-grown meat), plant-based protein engineering, microbial fermentation, 3D food printing, and genetic modification (FAO, 2023; Malila et al., 2024; Mittal et al., 2023).

Artificial foods promise multiple benefits in line with sustainability imperatives. They can reduce land use, water consumption, and greenhouse gas emissions associated with industrial farming, while also mitigating concerns over animal welfare, zoonotic disease transmission, and overfishing (Henchion et al., 2017; Kaplan, 2017; Landesz, 2023). For instance, plant-based meat alternatives—such as those developed by Impossible Foods and Beyond Meat—have demonstrated substantially lower environmental impacts compared to conventional beef production (Solomon, 2015). Similarly, cell-cultured meat produced via tissue engineering represents a potentially revolutionary approach to meat consumption, allowing for animal-free protein with controlled nutrient profiles and scalable production processes (Turp et al., 2022).

Despite these technological and ecological advancements, artificial foods remain controversial, particularly in the field of gastronomy. While some chefs and culinary innovators have embraced artificial ingredients as tools for creative experimentation and sustainability, others express skepticism, raising concerns about authenticity, naturalness, taste fidelity, and the potential erosion of traditional food cultures (Jabeen et al., 2019; Ulloa, 2019). This divergence of opinion reflects a broader cultural tension between innovation and tradition and highlights the role of chefs as key intermediaries between scientific innovation and consumer experience.

The discourse surrounding artificial foods intersects with several culinary and scientific paradigms. For example, molecular gastronomy—a scientific discipline that explores the physical and chemical transformations of ingredients during cooking—has long advocated for the experimental use of non-traditional materials in food preparation (Caporaso, 2021; McGee, 2010). Similarly, neurogastronomy, introduced by Shepherd (2013), examines how the brain interprets flavor, suggesting that sensory perception can be enhanced through biochemical and technological manipulation. Furthermore, 3D food printing, once confined to speculative design, is now a rapidly evolving technology that enables precise customization of nutritional content, texture, and shape, thereby aligning with emerging trends in personalized nutrition (Prakash et al., 2019).

3. Methodology

3.1. Research Design

This study adopts a qualitative research design rooted in the phenomenological approach, aiming to explore the in-depth perceptions of Turkish chefs regarding artificial foods within the framework of sustainable gastronomy. The phenomenological design is particularly suitable for uncovering the meanings that individuals attribute to a particular phenomenon—in this case, artificial foods—and how these meanings intersect with broader values related to sustainability and culinary culture (Creswell, 2007). The study was guided by an interpretivist epistemology, focusing on the subjective realities constructed by participants based on their lived experiences (Morgan, 1996).

The research questions that guided the study are as follows:

- What are Turkish chefs' thoughts on sustainable gastronomy?
- How do Turkish chefs perceive artificial foods?
- What is the perceived role of artificial foods within sustainable gastronomy?
- What are the perceived advantages and disadvantages of artificial foods?

These questions served as the conceptual foundation of the research. In order to operationalize them in the field, a semi-structured interview form was developed to elicit participants' detailed views on gastronomy, sustainability, and artificial foods. The interview form included twelve open-ended questions that ensured both focus and flexibility during data collection (see Table 2).

3.2. Participants

The social universe of this study consisted of Turkish chefs actively working in Türkiye. Participants were selected using the snowball sampling technique, which allows researchers to reach individuals with specific characteristics by following referrals from initial subjects (Berg & Lune, 2015). The final sample comprised 20 chefs from various institutions and regions, reflecting diversity in terms of age, gender, education level, institutional setting, and years of professional experience.

Data saturation was reached after the 20th interview, suggesting that new insights were no longer emerging from the additional interviews (Guest, Bunce, & Johnson, 2006; Hennink, Kaiser, & Marconi, 2017). Detailed demographic information about the participants is provided in Table 1. The table includes the names of institutions (e.g., hotels, restaurants, and companies) where the participants are employed. Permission to disclose these institutional names was obtained from each participant, and the study was conducted in accordance with ethical standards approved by the Ethics Committee of Nevşehir Hacı Bektaş Veli University (Decision No: 2022.12.331, 30.11.2022). The authors confirm that no ethical or legal issues arise from including these names, as no sensitive or proprietary information about the institutions is disclosed.

3.3. Development of the Interview Guide

A semi-structured interview guide was developed to allow for both standardization across interviews and flexibility to explore emergent themes. Questions were designed to probe participants' knowledge about

Table 1. Demographic and professional profile of interviewees

Participant	Age	Gender	Educational Background	Position	Experience at Current Institution
P1	40	Male	Associate degree	Executive chef	10 years
P2	43	Male	Master's degree	Cold kitchen chef	4 years
P3	38	Male	Master's degree	Executive chef	4 years
P4	39	Male	Master's degree	À la carte chef	5 years
P5	24	Male	Associate degree	Executive chef	3 years
P6	23	Male	Associate degree	Demi chef de partie	1.5 years
P7	23	Male	Associate degree	Executive sous chef	4 months
P8	49	Male	Associate degree	Executive chef	2 years
P9	45	Male	High school	Executive chef	5 years
P10	50	Male	High school	Executive chef	3 years
P11	44	Male	High school	Head chef	15 years
P12	34	Male	High school	Bakery chef	9 years
P13	24	Female	Associate degree	Demi chef	3 years
P14	23	Female	Associate degree	Executive chef	2 years
P15	53	Male	High school	Head chef	1 year
P16	25	Male	High school	Executive chef	3 years
P17	36	Male	Master's degree	R&D chef	1 year
P18	37	Male	High school	Cold kitchen chef	5 years
P19	33	Male	High school	Executive chef	14 years
P20	40	Male	Primary school	Executive sous chef	2 years

gastronomy trends, their understanding of sustainability in food production and consumption, and their awareness and opinions regarding artificial foods (see Table 2). The interviews were conducted face-to-face and lasted approximately 25–30 minutes each. All interviews were audio-recorded with participant consent and later transcribed verbatim.

Table 2. Questions in the semi-structured interview form

No	Interview Question
1	What do you think about gastronomy?
2	How do Turkish chefs perceive gastronomy?
3	Do you have any knowledge about gastronomy trends?
4	Are you familiar with the sciences related to gastronomy?
5	What does sustainability mean to you?
6	Do you have knowledge about sustainable gastronomy? What are your thoughts on it?
7	What do you think about the future of sustainable gastronomy?
8	Do you have any knowledge about artificial foods?
9	Are artificial foods important in terms of sustainable gastronomy?
10	What is your opinion about the advantages of artificial foods?
11	What is your opinion about the disadvantages of artificial foods?
12	Should artificial foods replace natural foods?

3.4. Data Collection and Analysis

Data were collected through semi-structured interviews, a method that enables the exploration of individual perspectives while ensuring consistency across participants (Tisdell, Merriam & Stuckey-Peyrot, 2025). The transcribed interviews were transferred to MAXQDA, a qualitative data analysis software. The data analysis process followed an inductive and deductive approach, enabling the identification of both pre-defined and emergent themes.

Thematic coding was conducted collaboratively with three expert coders. Themes and sub-themes were generated through iterative readings and constant comparison of the data. The reliability of the coding process was confirmed by calculating Cohen's Kappa coefficient, which was found to be 0.88—indicating "almost perfect" inter-coder agreement (Burla et al., 2008; Everitt, 1996). Additionally, detailed coding frequency and agreement metrics were tabulated (see Table 3), revealing an overall inter-coder agreement rate of 91.16% across thematic codes, which indicates a high level of coding consistency and confirms that coders consistently interpreted participants' statements, thereby strengthening the reliability of the thematic framework and contributing significantly to the trustworthiness and rigor of the research findings (Burla et al., 2008).

Table 3. Inter-coder agreement results based on code overlaps in the document

Code	*Agreed*	*Disagreed*	*Total*	*Agreement (%)*
Gastronomy as a profession	20	0	20	100.00%
Gastronomy as part of culture	0	5	5	0.00%
Gastronomy as a science	30	0	30	100.00%
Gastronomy as an art	10	0	10	100.00%
Cultural identity element	0	5	5	0.00%
Continuity of eating and drinking practices	34	4	38	89.47%
Transferring traditions without altering	30	1	31	96.77%
Prevention of food waste	20	1	21	95.24%
Social awareness and responsibility	36	0	36	100.00%
Future of sustainable gastronomy	74	2	76	97.37%
Slow food	22	0	22	100.00%
Fast food	14	2	16	87.50%
Molecular gastronomy	34	0	34	100.00%
Fusion cuisine	16	0	16	100.00%
Veganism	10	0	10	100.00%
Vegetarianism	10	0	10	100.00%
Artificial foods	4	2	6	66.67%
Other culinary trends	16	0	16	100.00%
Knowledge on artificial foods – present	22	0	22	100.00%
Knowledge on artificial foods – absent	12	0	12	100.00%
Artificial foods are advantageous for sustainability	50	2	52	96.15%
Artificial foods disadvantageous for sustainability	42	4	46	91.30%
Artificial foods are harmful	42	2	44	95.45%
Artificial foods are beneficial	24	2	26	92.31%
Tendencies toward artificial foods	38	1	39	97.44%
Total	560	28	588	91.16%

3.5. Validity and Reliability

Ensuring the credibility and dependability of the data was a primary concern throughout the research process. In qualitative inquiry, validity involves accurately capturing participants' meanings, while reliability refers to the consistency and transparency of the research procedures (Golafshani, 2003). In this study, several strategies were employed to enhance methodological rigor. First, triangulation was ensured through the involvement of multiple coders in the data analysis process. Member checking was conducted both during and after the interviews to validate participants' responses and interpretations. Additionally, all coding rules and analytical decisions were transparently documented to support replicability and clarity.

The inter-coder agreement tool in MAXQDA was utilized to assess consistency between coders, thereby strengthening the reliability of the qualitative analysis. Specifically, Cohen's Kappa coefficient (Cohen, 1960) was computed to determine the level of agreement beyond chance. The high Kappa value (0.88) demonstrated strong alignment between coders and validated the thematic framework used for interpretation. Consistent coding ensured clarity in theme development, minimized researcher bias, and increased the analytical depth of the study. The limitations arising from resource and time constraints were acknowledged; however, methodological rigor was maintained within these boundaries.

The qualitative and phenomenological design of the study, the purposeful sampling strategy, the rigorously developed interview guide, and the methodical data analysis procedures collectively strengthen the study's contribution to the literature on sustainable gastronomy and culinary innovation.

4. Results

This section presents an in-depth evaluation of Turkish chefs' perceptions regarding sustainable gastronomy and artificial foods, in alignment with the objectives of the study. Utilizing qualitative content analysis, four principal themes and associated sub-themes were identified through semi-structured interviews: (1) Perceptions of Gastronomy (including gastronomy as a profession, science, art, and cultural element), (2) Perceptions of Sustainable Gastronomy (such as

Table 4. Summary of principal themes and sub-themes identified in the study

Principal Themes	*Associated Sub-Themes*
1. Perceptions of Gastronomy	Gastronomy as a profession, gastronomy as a science, gastronomy as an art, gastronomy as part of culture
2. Perceptions of Sustainable Gastronomy	Continuity of eating and drinking practices, transferring traditions without altering, prevention of food waste, social awareness and responsibility, future of sustainable gastronomy
3. Views on Gastronomic Trends	Slow food, fast food, molecular gastronomy, fusion cuisine, veganism, vegetarianism
4. Views on Artificial Foods	Knowledge about artificial foods (present/absent), advantageous and disadvantageous of artificial foods in terms of sustainability, perceived harmfulness and benefits, tendencies toward artificial foods

continuity of eating and drinking practices, transferring traditions, prevention of food waste, social responsibility, and the future of sustainable gastronomy), (3) Views on Gastronomic Trends (including slow food, fast food, molecular gastronomy, fusion cuisine, veganism, and vegetarianism), and (4) Views on Artificial Foods (covering awareness levels, perceived advantages and disadvantages, sustainability implications, and tendencies toward artificial foods).

A concise summary of these thematic structures is presented in Table 4, enabling readers to grasp the overarching analytical framework before detailed interpretations are provided.

4.1. Perceptions of Gastronomy

The theme "Perceptions of Gastronomy" explores how participants define and conceptualize the field of gastronomy. Despite being the least frequently coded theme (f=70), it is particularly noteworthy that many chefs approached gastronomy as an interdisciplinary scientific field. The subtheme "Gastronomy as a Science" (f=30) underscores the perception that gastronomy intersects with disciplines such as chemistry, biology, and anthropology, extending far beyond mere culinary practice:

> "In my opinion, gastronomy is entirely a science. It has chemistry, it has geography. Since it is directly related to humans, it is highly valuable." (P6)

This conceptualization is consistent with contemporary perspectives that position gastronomy not only as a technical vocation but also as a cultural and scientific endeavor (Santich, 2004; This & Rutledge, 2009). Conversely, the subthemes "Gastronomy as a Profession" (f=20) and "Gastronomy as an Art" (f=10) reveal that some chefs primarily interpret gastronomy as a means of livelihood or a form of creative expression. These interpretations correspond with prior work on chefs' professional and artistic identities in gastronomy (Fine, 1996; Svejenova, Mazza, & Planellas, 2007).

Moreover, certain participants emphasized the integral role of gastronomy within the context of tourism, identifying it as a strategic instrument for cultural representation and destination branding. Gastronomy was frequently cited as a critical factor enhancing the attractiveness of a destination.

4.2. Perceptions of Sustainable Gastronomy

The theme "Perceptions of Sustainable Gastronomy" (f=202) reflects a relatively high level of awareness among participants regarding sustainability. The most dominant subtheme, "The Future of Sustainable Gastronomy" (f=76), encapsulates forward-looking assessments suggesting that gastronomy must increasingly align with environmental and social responsibility:

> "Gastronomy will always exist, as long as there are people, but it must be carried out in a sustainable way." (P4)

The subthemes "Continuity of Eating and Drinking" (f=38) and "Transferring Traditions to the Future" (f=31) illustrate participants' belief in the necessity of preserving cultural heritage to ensure sustainability (Bessière, 1998; Trichopoulou, Soukara, & Vasilopoulou, 2007).

Additionally, the subthemes "Prevention of Food Waste" (f=21) and "Social Responsibility and Awareness" (f=36) suggest that participants are aware not only of the economic dimensions of sustainability but also of its environmental and ethical aspects:

> "Even the tomato peel is not thrown away, we make a breakfast sauce out of it. Waste is a sin anyway." (P16)

Notably, some chefs stressed that sustainability should not be narrowly interpreted as the mere use of local ingredients, but should also encompass energy efficiency, waste management, and strategic menu planning. These insights point to the necessity of adopting a comprehensive and systemic approach to sustainable gastronomy.

4.3. Views on Gastronomic Trends

The theme "Views on Gastronomic Trends" (f=130) assesses participants' awareness of contemporary gastronomic movements. The prominence of "Molecular Gastronomy" (f=34) and "Slow Food" (f=22) reflects an appreciation of both technical innovation and nature-based, sustainability-oriented practices:

> "I've heard of molecular cuisine, vegan, and vegetarian trends are everywhere now. But gradually people are turning back to tradition." (P2)

Other subthemes such as "Fusion Cuisine", "Veganism", and "Vegetarianism" were cited less frequently, suggesting that participants possess only rudimentary familiarity with these movements. This finding is in line with the descriptive studies by Yıldız and Yılmaz (2020), which highlight knowledge gaps among culinary professionals regarding evolving gastronomy trends.

While a subset of participants perceived such trends as transient or fashionable, others viewed them as critical for adapting to shifting consumer demands—particularly among younger demographics who increasingly prefer plant-based diets. These shifts were recognized by participants as driving forces behind necessary menu diversification and adaptation.

4.4. Views on Artificial Foods

The most salient theme, "Views on Artificial Foods" (f=241), indicates that artificial food products constitute a central and contentious issue among chefs. Participants expressed ambivalence—viewing artificial foods both as potential solutions to global challenges and as sources of cultural and sensory disruption. The subtheme "Advantages of Artificial Foods in Terms of Sustainability" (f=52) highlights perceived benefits such as environmental efficiency, lower production costs, and enhanced food security:

> "Population is increasing, resources are decreasing. Artificial foods can at least be supportive." (P1)

In contrast, the subthemes "Disadvantages of Artificial Foods in Terms of Sustainability" (f=46) and "Perceived Harmfulness" (f=44) reveal a degree of skepticism and concern regarding the possible loss of culinary authenticity and enjoyment:

> "Artificial food ruins the pleasure. Food is not just about filling the stomach; it is also about enjoyment." (P1)

These sentiments reflect concerns raised about the ethical, cultural, and sensory impacts of lab-grown meat. Additional subthemes, such as "Perceived Benefits of Artificial Foods" (f=26) and "Anticipated Consumer Shift Toward Artificial Foods" (f=39), reflect more pragmatic considerations, including hunger mitigation and extended shelf life.

The subtheme "Lack of Knowledge About Artificial Foods" (f=12) underscores a significant knowledge gap, in which many chefs admitted to being insufficiently informed about the nature, production, and implications of artificial foods. This aligns with the observations of Yıldırım and Şimşek (2016), who emphasize the critical role of prior knowledge in enabling meaningful and transparent qualitative analysis.

Some participants further noted that artificial foods are not adequately addressed in culinary education, thereby impeding their professional development and capacity to respond to future food innovations. These perspectives suggest an urgent need for curriculum reform and professional training within the sector.

The overall findings reveal that Turkish chefs perceive their professional role in gastronomy not merely as technical practitioners, but as agents of social responsibility, sustainability, and ethical consciousness. Nonetheless, the evident lack of knowledge and prevailing biases concerning artificial foods underline a significant educational gap. These insights point to the imperative to integrate sustainability and food technology content into gastronomy education. Moreover, the data indicate that chefs are striving to reconcile traditional culinary values with contemporary innovations, often in response to evolving consumer expectations. To facilitate this transition, it is essential to support the sector through targeted educational policies and continuous professional development programs.

5. Discussion and Conclusions

This study demonstrates that the ongoing transformation in the food sector—primarily driven by sustainability imperatives and technological innovations—is reshaping both the conceptual and operational contours of contemporary gastronomy. Among these developments, artificial foods have gained prominence due to their perceived potential to enhance food security, mitigate environmental degradation, and promote ethical consumption. Findings reveal that Turkish chefs possess a relatively high degree of awareness concerning sustainability practices, especially in relation to local sourcing, waste minimization, and resource conservation. However, their limited articulation of gastronomy's scientific and theoretical foundations indicates a knowledge gap that necessitates further academic integration within culinary professions. Artificial foods emerged as the most frequently coded theme, suggesting strong professional interest and perceived relevance. Participants expressed generally positive views regarding their sustainability potential, albeit accompanied by apprehensions about health risks and the erosion of traditional agricultural systems. These nuanced perspectives reaffirm gastronomy's inherently interdisciplinary nature, encompassing historical, chemical, and sociological dimensions.

Manning et al. (2023) found concerns among professionals regarding the adverse implications of artificial meat on traditional farming systems and rural livelihoods. This further underscores the importance of meeting sensory expectations and mitigating consumer skepticism, both of which are critical for achieving widespread acceptance of artificial meat products (Bryant & Barnett, 2018; Wilks & Phillips, 2017; Siegrist & Sütterlin, 2017; Pakseresht, Ahmadi Kaliji, & Canavari, 2022). Additionally, prior studies (Siddiqui & Dhua, 2010) have highlighted potential health-related concerns surrounding artificial food consumption—concerns echoed by participants in this study. Thus, the research aligns with and contributes to a growing body of literature, offering culturally grounded insights within the Turkish gastronomy context.

From a theoretical standpoint, the findings call for a deeper integration of food science, environmental studies, and ethics into gastronomy research. The culinary profession, traditionally practice-oriented, is evolving toward a model that requires intellectual engagement with complex socio-technical challenges. Practically, the results suggest a need to restructure culinary education. Curricula should be updated to include interdisciplinary content covering environmental science, sustainable agriculture, food ethics, and emerging technologies such as artificial food production. This would equip future gastronomy professionals with the skills necessary to engage with evolving demands in public health, climate adaptation, and food innovation. Moreover, hospitality and food service sectors are increasingly incorporating sustainability principles into their operations—such as sourcing locally, reducing food waste, and exploring the use of cell-based and plant-based alternatives. These strategic shifts respond not only to environmental imperatives but also to evolving consumer preferences and corporate social responsibility (CSR) goals.

Public awareness and regulatory support are crucial to the successful integration of artificial foods into sustainable gastronomy. Consumer education campaigns can help demystify artificial foods and reduce resistance by communicating their environmental and ethical advantages alongside scientific evidence about safety and nutrition. Governments, in turn, must support traditional producers while fostering innovation. This includes offering incentives for sustainable practices, investing in food research and innovation hubs, and facilitating cross-sector dialogue. A balanced approach is needed—one that preserves culinary heritage while embracing progressive food technologies.

The field of gastronomy is undergoing a profound paradigm shift as sustainability challenges converge with technological innovations such as artificial food production. This study finds that chefs are increasingly positioned not only as culinary artisans but also as sustainability advocates, cultural custodians, and drivers of innovation. A reimagined gastronomy—one that is academically grounded, ethically oriented, and technologically literate—is urgently needed. By embracing an interdisciplinary approach, both academia and the industry can better prepare professionals to navigate the complexities of food system resilience, public health, and ethical consumption. Ultimately, the integration of sustainability literacy, technological fluency, and cultural sensitivity will enable chefs to play a transformative role in shaping the future of food. This study contributes to that vision by highlighting the perspectives of culinary practitioners and offering strategic insights for education, policy, and research.

While the study offers valuable insights, several limitations must be acknowledged. First, the sample was limited to professional chefs within Turkey, which may constrain the generalizability of the findings. Cultural, economic, and institutional contexts likely influence perceptions of artificial foods and sustainability practices. Second, the study employed a qualitative methodology, which provides depth but not breadth. Future research could benefit from mixed-method or large-scale quantitative studies to examine consumer perspectives and behavioral trends. Comparative analyses across diverse culinary cultures and stakeholder groups, including food technologists, policymakers, and consumers. Longitudinal studies would also be useful to assess evolving attitudes toward artificial food technologies and their long-term impact on gastronomy and food systems.

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Declaration of Competing Interest

The authors declare that they have no financial or non-financial competing interests.

Author's Contributions

Ş. Özmen (0000-0003-2561-6939): *Data Collection, Formal Analysis, Writing – Original Draft.*
G. Deniz (0000-0002-9980-8506): *Conceptualization, Methodology, Methodology, Validation, Writing – Review & Editing, Supervision.*

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