

Gastronomy Unexplored:

Integrating Science, Art and Culture
in Culinary Innovation

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VIZJA University, Warsaw (Poland)

BOOK OF ABSTRACTS

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ORAL PRESENTATION

Role of Wakhi and Khowar Women's Traditional Knowledge in Food Security of Upper Chitral-Pakistan

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Abstract

Traditional ecological knowledge of indigenous tribes on native crops, agroforestry, and sustainable management practices ultimately contributes to food security and sustaining life. Women in the mountain regions are more directly connected to the environment and exhibit a significant understanding of sustainable natural resource management and food security. This study was focused on the cross-cultural analysis of women's knowledge of food resources among Khowar and Wakhi linguistic groups inhabiting the Rech and Broghil valleys in upper Chitral. The data was collected from 75 women through transect walks, observations, and extensive field surveys using semi-structured interviews with key and general informants, and focused group discussions. In total, 65 food plant species, 10 animal species along with 16 different food products, and 56 traditional cuisines were reported by the Khowar and Wakhi women. *Eremurus stenophyllus* and *Allium barszczewskii* were the most cited food plant species with RFCs of 0.880 and 0.853, respectively. Likewise, *Beta vulgaris*, *Zea mays*, and *Brassica napus* were the most cited species ($\geq 80\%$) by Khowar people of Rech, while *Thymus serpyllum*, *Zygophyllum obliquum*, and *Papaver involucreatum* were frequently quoted by Wakhi of Broghil. Culinary uses of seven plant species including *Hylotelephium ewersii*, *Atriplex hortensis*, *Anthemis Nabataea*, *Chenopodium foliosum*, *Saxifraga sibirica*, and *Trigonella gladiata* were reported first time from this region. Cross-culture analyses revealed significant homogenous and heterogenous trends based on the number of reported food species of plants/animals and their use reports. About 58% of food plant species were specific to Khowars, 10% were specific to Wakhi and 32% were common among both groups. However, based on use reports heterogeneity was observed as 46% of use reports were unique to the Khowar, 43% were exclusive to Wakhi, and 10% were shared between both groups. Out of sixteen, 8 animal-based products were shared by both groups, 6 were exclusive to Khowar and only 2 were unique to Wakhi food culture. Khombokh/Mrik, Cheer/Xarj, and Don/Rugon were the top cited dairy products ($\geq 50\%$) among both groups. However, Phenak (cottage cheese) and Trin (curd) were highly cited ($\geq 70\%$) dairy products exclusive to Khowar,

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while Macheer (double fermented curd) and Qurut were the most cited dairy products of Wakhi with RFCs 0.80 and 0.65, respectively. Out of 56 traditional cuisines 16 were shared between both the groups, 32 were unique to Khowar culture, and 8 were unique to Wakhi culture. Ghalmandi and Qurutaab were the signature Khowar and Wakhi cuisines with the highest citations (87% and 74%, respectively). Ever since Wakhi and Khowar women have become accustomed to practicing traditional culinary methods, they have contributed significantly to preserving and securing the diversity of local food systems, food sustainability, food cultural legacy, and household food security. The findings of this study are a valuable addition to the traditional knowledge pool particularly to food resources among mountain communities and the role of women. Since women are essential to food security, inclusive research addressing their social, economic, and environmental issues must be conducted. Furthermore, policies must consider the traditional knowledge of women to ensure resilient food systems.

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Sustainable brewing: valorization of apple pomace and its impact on beer quality and consumers' acceptability

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Abstract

With the primary goal to promote a shift towards circular economy, also through the recovery of waste materials, this study explored the potential application of apple pomace (AP) - the solid by-product generated during the processing of apples - as a flavouring ingredient in beer production.

Six beers were brewed using three apple varieties (*Gala*, *Golden* and *Gala Schniga*@*SchniCo red*) at two concentrations (60 and 180 g/L). They were analyzed for colour, pH, alcohol content, polyphenols content, bitterness, volatile profile and sensory characteristics. During the sensory evaluation, consumers also expressed their opinion about the appropriateness of using apple pomace in brewing.

Increasing AP concentration lowered alcohol content and pH; simultaneously polyphenol content varied with apple variety. Volatile compound analysis highlighted distinct profiles influenced by both apple variety and AP concentration, with esters and higher alcohols as key aroma contributors. Consumers' sensory evaluation (n= 98) indicated a preference for beers with lower AP concentrations, particularly those brewed with *Gala* apple pomace. Multiple Factor Analysis demonstrated that sensory attributes and volatile profile were crucial in sample differentiation, highlighting the importance of carefully selecting apple variety and AP concentration to develop acceptable apple pomace-based beers suited to consumer preferences. Cluster analysis identified two consumers' segments: "fruity beer enthusiasts", predominantly younger and female, who considered appropriate the use of fruit-based ingredients in brewing, and "fruity beer sceptics", who included more traditional consumers less inclined toward such innovations.

In conclusion, this study supported the feasibility of using apple pomace as a sustainable ingredient in brewing, aligning with circular economy principles and promoting innovative and eco-friendly practices in the beer industry.

Keywords

Circular economy; Consumers preference; Sensory analysis; Volatile profile; Waste valorization

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From co-creation to consumption: sensory evaluation of a plant-based bakery snack

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Abstract

The rising demand for plant-based, allergen-friendly convenience foods is reshaping innovation in the gastronomy and bakery sectors.

Within the framework of the EIT Food RIS Consumer Engagement Labs, a co-creation process with consumers avoiding animal-based ingredients resulted in a vegan bakery snack filled with spinach, hummus, and sun-dried tomatoes.

Designed to address the needs of individuals with dietary restrictions and preference for clean-label products, the snack was successfully commercialized and is currently available in supermarkets.

This study aimed to evaluate the sensory attributes and consumer liking of the product.

Sensory research was conducted at the Sensory Laboratory of Institute of Human Nutrition Sciences, WULS-SGGW with participants who completed a structured questionnaire on two categories: demographics and product evaluation using a 9-point hedonic scale. A total of 104 complete responses were analyzed.

Overall liking was high, with appearance, aroma, taste, and texture all receiving average ratings corresponding to "I like it a lot" (8-points). Packaging appearance received a little bit lowest score, positioned at "I like it moderately" (7-points). Open-ended feedback highlighted positive descriptors such as soft crumb, golden crust, fresh, moist, and easy to consume. However, criticisms focused on excessively large plastic packaging and the tendency of the product to crumble during consumption. Despite these drawbacks, purchase intent was strong, with most participants indicating high likelihood of buying the snack.

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This study confirms that involving consumers in product development can lead to the successful creation of commercially viable plant-based bakery items with high sensory acceptance. Future development should prioritize packaging redesign to enhance sustainability perceptions and handling convenience, reinforcing the product's suitability as an on-the-go snack or nutritious second breakfast alternative.

Keywords

bakery snack, new product development, vegan diet, plant-based product, sensory analysis, consumer research

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Relationship between Thermal Taster Status, Oral Thermal Sensitivity and Food Serving Temperature Preferences

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Abstract

Serving temperature shapes food sensory perception and choices, yet whether inter-individual differences in thermo-gustatory reactivity relate to preferred consumption temperatures remains unclear. Building on an exploratory, taste-focused stratification of the traditional Thermal Taster Status (TTS) classification (TTs: Thermal Tasters; TnTs: Thermal non-Tasters; NCs: Not Classified), this study examined links between food serving temperature preferences, individual oral thermal sensitivity, and TTS. One hundred thirteen participants rated preferred consumption temperature (1 = extremely cold; 9 = extremely hot) for 48 foods/beverages. Moreover, participants were tested to determine their TTS and oral thermal-sensitivity (through the estimation of four parameters: cold/warm detection thresholds and cold/warm pain thresholds). Based on the four thermal thresholds, four clusters of participants with distinct preference profiles for items consumed mainly at cold, ambient, and hot temperatures were identified. However, the clusters did not differ in terms of TT and TnT distributions. Under traditional TTS classification, TnTs preferred higher temperatures for cold/ambient items than TTs, with NCs intermediate. Taste-focused stratification revealed selective associations: Salty-TnTs for ambient items, Bitter-TnTs for cold items, and Sour-TnTs for both cold and ambient items consistently preferred higher serving temperatures relative to their respective taste-specific TTs. Regarding oral thermal sensitivity, Salty-TnTs and Umami-TnTs showed lower warm pain threshold than their TT counterparts. These findings highlight the value of a more in-depth, taste-specific TTS analysis combined with oral thermal sensitivity in advancing the understanding of individual differences in serving temperature preferences. Although preliminary, this approach offers a promising framework for hypothesis-driven research on the physiological mechanisms underlying TTS and for applied decisions on optimal serving temperatures and product design.

Keywords

Taste-specific Thermal Taster Status; Oral somatosensation; Cold/warm detection thresholds; Cold/warm pain thresholds; Consumer segmentation.

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Pane DOP di Altamura” and “Piadina Romagnola IGP” in the global market: Authenticity, counterfeiting, and related challenges

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Keywords

PDO; PGI; Pane di Altamura; Piadina Romagnola; Food Law.

Introduction

Geographical indications (GIs) represent a strategic tool for protecting and promoting agri-food excellence within the European Union. This study focuses on two Italian bakery products—Pane di Altamura PDO and Piadina Romagnola PGI—as models to explore how tradition, regulation, and market dynamics interact in the global agri-food landscape (EU Reg. No. 1151/2012; EU Reg. No. 1308/2013).

Aim of the Study

The research aims to assess how the intrinsic characteristics and regulatory frameworks of these products influence their capacity to enter international markets, preserve authenticity, and prevent counterfeiting (TRIPS, 1994). It also seeks to identify the main barriers and opportunities affecting the global competitiveness of PDO and PGI-certified goods.

Materials and Methods

A legal-comparative methodology was adopted, examining international, EU, and national sources, including the TRIPS Agreement, Paris Convention, Lisbon and Geneva Acts, and the CETA Agreement (EU–Canada, 2017). The study also reviewed registration acts—Commission Regulation (EC) No. 1291/2003 for Pane di Altamura and Implementing Regulation (EU) No. 1174/2014 for Piadina Romagnola—along with data from the ICQRF Report 2023 and product protection consortia.

Results

The analysis reveals that while Pane di Altamura PDO maintains strong local identity and authenticity, its strict production protocol and perishability restrict export potential. In contrast, Piadina Romagnola PGI, benefiting from more flexible regulations allowing long-term storage, has achieved widespread international distribution, exceeding 24 million kg produced and over 500,000 kg exported in 2022 (ICQRF, 2023).

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Conclusions

PDO and PGI certifications remain essential for protecting cultural and gastronomic heritage, yet international success requires balancing tradition and innovation. Pane di Altamura would benefit from updated production standards to facilitate export without compromising quality, while Piadina Romagnola exemplifies a sustainable, export-oriented model. Strengthening traceability systems, legal cooperation, and consumer education remains vital for safeguarding authenticity in an increasingly globalized market.

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Re-enacting Gestures of Scarcity: The Living Food Heritage of 1980s Romania

by Rares-Augustin Craiut

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Abstract

This paper explores the gastronomic system of 1980s socialist Romania, a period of profound resource scarcity that gave rise to a unique culinary culture of resilience and innovation. Contributing to the **history and anthropology of food**, this research investigates the unwritten culinary practices passed down by women as a form of **intangible cultural heritage**. It moves beyond official histories of hardship to analyze the complex ways in which food practices sustained social identity, creativity, and community bonds under authoritarian constraints.

The research employs a methodology centered on performative re-enactment to access and document tacit, embodied knowledge that escapes traditional archival methods. Through the reconstruction of dishes, shared meals, and sensory storytelling, the project analyzes the **sensory aspects of gastronomy** and the communication of culinary traditions across generations. This approach treats the kitchen not merely as a site of food preparation, but as a living laboratory for studying **food rituals** and the transmission of non-textual knowledge.

This study yields several key insights. Firstly, **for food heritage studies**, it documents a sophisticated system of culinary improvisation at risk of being lost. Secondly, it contributes to discussions on **gastronomy and sustainability** by uncovering historical zero-waste techniques, foraging knowledge, and alternative food networking that predate contemporary ecological concerns. Finally, it offers a powerful case study on **food and identity**, demonstrating how gastronomic creativity can be a defiant act of preserving dignity and social connection in times of crisis.

By analyzing these historical practices, the *GospodinA* project argues that „gastronomies of scarcity” are not merely relics but are rich archives of culinary innovation. It offers these reactivated gestures and knowledge as a vital resource for contemporary chefs, food educators, and policymakers seeking to build more sustainable and resilient food futures.

Author Biography

Rareș Augustin Crăiut (1980) is a Romanian-born artist, chef, and researcher based in Brussels. His practice explores the agency of food as an artistic medium, creating performances and convivial situations that interrogate collective memory and affect. With a particular interest in bread for its sensory and symbolic qualities, his work examines how culinary gestures transmit knowledge and stories.

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He is currently pursuing a practice-based PhD in artistic research with the **École de Recherche Graphique (erg)** and the **University of Liège**. His doctoral project, **GospodinA**, analyzes and reactivates the vernacular archives of 1980s socialist Romania through culinary performance. His work has been supported by research environments like a.pass (Brussels) and presented at international conferences.

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ComModification of (traditional) plant knowledge - *Artemisia*, *Amaranthus* and *Ocimum* in Bulgaria

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Abstract

Intergenerational transmission of food-related traditional knowledge depends on a wide range of socio-economic factors and nowadays obtaining sufficient safe local food at an affordable price becomes increasingly complicated. The necessity of daily nutrition modifies consumers' choices and expectations depending on the current availability, co-creating new gastronomic snippets, all possessing the potential to become a part of local bioculture. Exploring folklore and ethnographical literature and employing ethnobotanical field observations and consumption surveys, we present the modification of (traditional) knowledge related to the use of currently popular food plants from the genera *Artemisia*, *Amaranthus* and *Ocimum* in Bulgaria. In the past symbolic meaning and medicinal application were mostly attributed to the wormwood and sweet basil. The latter was related to funeral traditions in many parts of the country and hence avoided as food, while *Artemisia* is widely used for flavoring homemade wines and spirits and its local use as food is limited only to a few local communities. On the other hand various species of *Amaranthus* were perceived as an obnoxious weed and as an animal fodder and in some places were consumed mostly as hunger food. The adoption of foreign consumption habits in the early 1990s and adherence to the super food agenda stimulated the re-discovery of "local traditions" and valorization of local plant-related knowledge. We discuss ways to update and reshape contemporary diet patterns on the one hand, and on the other how the increased interest in plant foods can impact the overall interest in sustainable consumption and nature conservation fostered by increased botanical knowledge.

Acknowledgements:

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Keywords

ethnobotany, local knowledge transformation, sustainability, food sovereignty

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Gastronomic Dietetics: Integrating Health, Science Education and Creativity in Modern Inclusive Gastronomy

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Abstract

As gastronomy evolves beyond taste and aesthetics, it increasingly intersects with nutrition science and public health. Our word introduces the emerging concept of gastronomic dietetics - a field where clinical nutrition meets culinary innovation to create inclusive, health-oriented dining experiences. We address a pressing question: can contemporary gastronomy respond to the needs of individuals with diet-related diseases - such as celiac disease, kidney disorders, or metabolic conditions - without compromising its cultural, creative, and social essence? The discussion draws on initiatives linking dietitians, chefs, restaurateurs and teachers, exploring barriers of health-related exclusion from public dining, as well as the economic and organizational challenges of integrating therapeutic menus into mainstream foodservice. We aim to open this largely unexplored field of gastronomy, reflecting on how science-based, health-driven culinary innovation can foster social inclusion, redefine the dining experience, and build human well-being on the practical implementation of scientific achievements.

Keywords

gastronomic dietetics; inclusive gastronomy; therapeutic nutrition; culinary innovation; health and social inclusion.

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Cured meat alternatives in Ireland: Understanding consumer perceptions through a multistudy approach

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Abstract

Cured meats, while deeply rooted in Irish food culture, present two major public health challenges: the presence of carcinogens formed from nitrites and the broader need to reduce overall meat consumption. This research investigated whether cured meat alternatives, both plant-based and nitrite-free meat-based options, can provide a meaningful substitute for Irish consumers, or whether alternative strategies may be more effective. Rather than approaching the reduction in meat consumption as a general issue disconnected from specific products, this research focused on a culturally significant product category and examined consumer responses in real-world decision-making contexts. A series of qualitative and quantitative studies were conducted, integrating explicit methods (sensory evaluations, consumer trials, interviews) and implicit techniques (eye-tracking). The role of health and environmental benefit information in shaping consumer perceptions was also examined. Findings revealed that plant-based meat alternatives were perceived with scepticism, particularly in relation to social acceptance, convenience, and product ambiguity. These products displayed sensory profiles that differed substantially from their conventional cured meat counterparts, and provision of health and environmental benefit information did not significantly improve consumer evaluations. In contrast, nitrite-free cured meat alternatives were perceived as offering clearer health benefits with fewer disadvantages. They were evaluated similarly or even more favourably than conventional products, and health benefit information increased both overall liking and purchase intent. Notably, health benefit information about nitrite-free products captured the greatest share of consumers' visual attention using eye-tracking. Overall, this multistudy approach highlights the limited appeal of plant-based cured meat alternatives in the Irish context, while nitrite-free options are perceived as more acceptable. These insights provide evidence to guide future research and to inform public health interventions at the intersection of consumer behaviour, protein transition, and meat reduction strategies.

Keywords

Food choice, health, sustainability, meat reduction, one health.

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Beyond Sweetness: Honey as a Medium for Flavour-Based Meaning-Making

Rasa Nabažaitė – Certified Honey Sommelier, Sensory Practitioner, and Food Culture Communicator (Lithuania)

Keywords

sensory design, flavour-based meaning-making, cultural ecology, ecological aesthetics, practice-led research.

Abstract

This presentation explores honey as a medium for flavour-based meaning-making — a sensory and cultural practice that reconnects people with food, place, and ecology. Once revered across civilisations for its rarity, symbolism, and universality, honey has in modern times been reduced to a mere sweetener. Industrial sugar and health-driven narratives have flattened the complexity of sweetness, eroding its emotional and symbolic resonance.

Working as a honey sommelier and drawing on gastronomy studies, I approach honey not as a product but as a complex substance filled with meaning — one that speaks of landscapes, pollinators, and human values in a language we have forgotten to read: our senses. Informed by sensory analysis, eating design, and ecological aesthetics, my practice uses honey tastings as immersive experiences to explore how perception, emotion, and reflection can transform understanding — not only of this once-sacred substance, but of food systems, our relationship with nature, and broader themes of community, loneliness, and belonging.

At the core lies the **sense–feel–think–act** model: a framework through which participants move from sensory encounter to emotional reaction, reflection, and, ideally, behavioural awareness. Honey's position between raw and cooked, nature and culture, makes it a potent vehicle for this process. Its universality allows this work to adapt to any cultural or ecological context. Each tasting becomes a dialogue about biodiversity and sustainability, expressed through taste, smell, texture, and functional beeswax tableware.

This practice-led inquiry proposes honey as an overlooked gastronomic and communicative tool — one that invites us to reimagine sweetness, revalue sensory experience, and consider flavour as a site of ecological and cultural knowledge.

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The use of selected culinary spices added to dishes in consumer evaluation

Elżbieta Olczak, Kamila Próchenka

Uczelnia Społeczno-Medyczna w Warszawie

Abstract

The aim of the study was a survey-based assessment by consumers regarding the properties of selected culinary spices added to dishes. The paper presents a survey conducted on a sample of 105 respondents regarding general knowledge about spice plants, such as: caraway, fennel, coriander, angelica, and garden lovage, as well as the use of spices and daily habits related to their use. Survey research has shown that the taste, aroma, and aesthetic qualities of spices are decisive in their use in dishes. These spices also have valuable health benefits, particularly for the digestive system. A significant portion of respondents use spices in their diet to add flavor and enrich the taste and aroma profile. They use fewer spices to improve digestion, constipation, bloating, and stomach aches.

Actions should be taken to raise public awareness about the health benefits of spices. Although their primary purpose is to improve organoleptic properties, we should not forget about the range of positive effects they bring to our body.

Keywords

culinary spices, consumer

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The Impact of an Anti-Inflammatory Diet on Hormonal Health in Women Over the Age of 35

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Andrzej Frycz Modrzewski Krakow University

Introduction

Women over the age of 35 often struggle with hormonal imbalances that may result from chronic inflammation or natural aging processes. Numerous scientific studies (Scheiber and Mank, 2023) confirm that foods rich in anti-inflammatory bioactive compounds can positively affect hormonal balance, metabolic health, and longevity in women. The most significant bioactive components of an anti-inflammatory diet include polyphenols (e.g., green cardamom, matcha green tea, flaxseeds, blueberries), alkaloids and methylxanthines (e.g., cacao), and bioactive fatty acids such as Omega-3s.

Thus, the anti-inflammatory diet acts as a bridge between science and everyday practice, with bioactive compounds—specifically polyphenols, methylxanthines, and essential fatty acids—gaining particular attention in the context of women's health.

Keywords

anti-inflammatory diet, women's hormonal health, bioactive compounds, lifestyle and hormones, oxidative stress, female longevity.

Aim

The aim of this paper was to present the latest data on the role of an anti-inflammatory diet in maintaining hormonal health in women over the age of 35, and to discuss selected bioactive food components with anti-inflammatory effects.

Materials and methods

A literature review was conducted based on scientific publications from 2015–2024, sourced from the PubMed and Scopus databases. The review included publications concerning the impact of antiinflammatory diets and selected bioactive compounds (polyphenols, methylxanthines, and Omega-3 fatty acids) on hormonal health and aging processes in women over 35. Only original and review studies with confirmed scientific methodology were included in the analysis.

Results

Scientific studies (Mao et al., 2024) indicate that diets rich in bioactive compounds such as polyphenols and methylxanthines can contribute to the reduction of systemic inflammation. Furthermore, it has

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been shown (Cheshmeh et al., 2021) that the use of certain spices such as green cardamom may reduce inflammatory markers and potentially support hormonal profiles in women with PCOS. Ceremonial cacao, due to its content of polyphenols and magnesium, supports stress axis regulation and hormonal balance (Murakami et al., 2023), while blueberries, as a rich source of polyphenols, also exhibit strong anti-inflammatory effects (Huang et al., 2014).

Conclusions

An anti-inflammatory diet rich in diverse bioactive compounds—such as polyphenols, Omega-3 fatty acids, and methylxanthines—may serve as an effective preventive strategy against hormonal imbalances in women over 35. Long-term adherence to this dietary approach reduces inflammation and improves estrogen metabolism, which may contribute to enhanced well-being, cognitive performance, and female longevity.

Current findings highlight the need for further research into the impact of bioactive compounds on hormonal health across the various life stages of women.

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Plant-Based Milk Alternatives: A Research Agenda for Nutritional Equivalence, Functionality, and Sensory Acceptance

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Abstract

Plant-based milk alternatives (PBMA) are expanding rapidly, yet often exhibit nutritional gaps and sensory limitations relative to bovine milk [1]. Protein quantity and quality are typically lower, apart from soy and some pea-based products, moreover digestible indispensable amino acid scores rarely match dairy [2]. Fortification remains inconsistent, as proposed standards emphasise shortfalls for protein, vitamin D and selected B-vitamins, and the need for calcium levels comparable to cow's milk [3-4]. Bioavailability is a further constraint as matrix effects and fortificant choice alter mineral uptake (e.g., tricalcium phosphate vs carbonate) [2-3]. At the technological level, PBMA differ in emulsion structure and rheology, influencing heat stability, foaming and mouthfeel, with direct implications for culinary use [5]. Sensory acceptance remains a primary barrier. Consumer data indicate, that "milky" appearance, smooth mouthfeel and moderate sweetness drive liking, whereas cereal, beany or cardboard notes depress acceptance [6]. Converging international assessments conclude that, while fortified PBMA can contribute positively to diets, they are not generally nutritional equivalents of milk across populations and life stages [2,4,7].

Presented data sets out a research agenda to: (i) operationalise nutrient-equivalence benchmarks aligned with population needs; (ii) test *in-vitro/in-vivo* bioavailability of key fortificants and co-fortification strategies; (iii) link emulsion physics and protein engineering to sensory-design targets; and (iv) integrate regulatory clarity with consumer-centred communication. Illustrative data from cereal-based beverages will be used solely as methodological exemplars.

Keywords

fortification; bioavailability; emulsion stability; sensory drivers; regulatory standards

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Epigenetic legacy of food: How parental diet shapes the health of future generations

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Introduction

The epigenetic legacy of food refers to the influence of parental diet (already at the preconception stage) on the reproductive and metabolic health of their offspring. Epigenetic modifications such as DNA methylation, histone structure alterations, and microRNA regulation modulate gene expression without changing the DNA sequence itself. Consequently, they affect fertility, embryo development, and the risk of diseases in adulthood.

Keywords

epigenetics, nutrition, fertility, gametes, transgenerational inheritance

Aim of the Study

The aim of this paper was to review current scientific data on the impact of parental nutrition and lifestyle before conception on the epigenome of gametes and the long-term health effects in offspring.

Materials and Methods

The analysis included available review papers and observational studies from 2015–2023 (including Stuppia et al., 2015; Kowalska et al., 2021; Łakoma et al., 2023; Nowicka et al., 2020), focusing on the influence of dietary micro- and macronutrients, as well as metabolic and environmental factors, on DNA methylation, gamete quality, and reproductive outcomes.

Results

It was demonstrated that a diet rich in methyl group donors (folic acid, methionine, vitamin B12), antioxidants, and omega-3 fatty acids supports proper DNA methylation and genome integrity (Kowalska et al., 2021; Łakoma et al., 2023). In contrast, deficiencies in these nutrients, obesity, and exposure to environmental toxins lead to epimutations, impaired spermatogenesis and oogenesis, and an increased risk of metabolic diseases in offspring (Stuppia et al., 2015; Nowicka et al., 2020). These effects may be inherited transgenerationally.

Conclusions

Optimizing diet and lifestyle during the preconception period may serve as an effective strategy for preventing epimutations and improving reproductive health. Therefore, well-planned parental nutrition is

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an investment in the health of present and future generations. The targeted development of functional foods (enriched with bioactive compounds that support methylation processes and protect the epigenome) may play a key role in the future in preventing infertility and ensuring better care for the reproductive health of future generations.

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Chefs as system actors: Participatory approaches to sustainable menu transformation in UK SME catering

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Abstract

This study addresses the role of chefs in UK SME catering as system actors in reducing greenhouse gas emissions and food waste through menu transformation, in line with the UK's net-zero targets. The hospitality sector significantly contributes to food system emissions, yet chefs' perspectives and operational constraints are often overlooked in sustainability initiatives.

Using participatory action learning and research, two workshops (n=8, n=12) with UK chefs applied Theory U and Bronfenbrenner's Ecological Systems Theory to examine the systems influencing menu decisions. Stakeholder mapping and menu priority ranking showed that meso-level actors (procurement, managers, owners) were seen as most influential, while micro-level actors (peers, friends) had less impact. Sustainability was ranked below product and customer priorities, highlighting tensions between environmental goals and business realities.

Workshops enabled chefs to share tacit knowledge, reflect on their agency, and engage in systems thinking. While transformational learning was observed, sustained change requires ongoing support and organisational alignment. Embedding sustainability into menu operations, rather than treating it as an add-on, is essential for lasting impact. This research offers a replicable model for chef-led sustainability interventions in SME catering and contributes to participatory food systems transformation literature.

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POSTER SESSION

Healthy Lunchboxes for Adolescents – Combining Education and Practice in the *Schody Zdrowia* Project: Screening and Nutrition Intervention among Youth

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Introduction

Childhood obesity is one of the major public health challenges of the 21st century. In Poland, the prevalence of overweight and obesity among children is steadily increasing, raising the risk of metabolic disorders, type 2 diabetes, hypertension, and cardiovascular disease. Early prevention and nutrition education, implemented both at school and at home, are essential in shaping healthy habits. The *Schody Zdrowia* ("Stairs of Health") project was designed to combine screening examinations with a practical, family-oriented nutrition intervention.

Aim

To assess the nutritional status of adolescents aged 11–14 years and to implement an intervention including education, culinary workshops, and individual dietetic consultations.

Material and methods

Screening included anthropometric measurements and body composition analysis using bioelectrical impedance (TANITA MC-780 S MA). Parameters assessed included BMI, BMR, TBW, bone mass, fat mass (FM), and muscle mass (MM). BMI was interpreted with Polish percentile charts, body fat with manufacturer's norms. The study involved 801 adolescents (437 girls, 364 boys).

Results

Based on BMI, 66.3% had normal weight, 22.1% were overweight, 4.6% obese, and 7.0% underweight. Body fat analysis showed 65.3% within the normal range, 14.4% overweight, 17.6% obese, and 2.7% underfat. Three

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(38.5%) and four (38.0%) meals per day were most common, while 13.2% ate only 1–2 meals and 10.4% consumed ≥ 5 meals. Regular meals were reported by 13.0%, partial regularity by 55.7%, and no regularity by 31.3%. Based on screening, 250 adolescents were invited, with 120 adolescents and families enrolled in the intervention.

Intervention

The program included a lecture, dietetic consultations, and workshops during which adolescents and caregivers prepared healthy lunchboxes, snacks, and drinks. Each participant received a nutrition guide. Workshops emphasized practical skills, creativity, and family cooperation.

Conclusions

Nearly one in four adolescents was overweight or obese, and many lacked regular meals. The intervention improved nutrition awareness, provided practical tools, and engaged families. Combining education with workshops proved effective in preventing and managing childhood obesity.

Keywords

childhood obesity; nutrition education; adolescents; dietary intervention; healthy lunchboxes

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Multi-species fruit garden for the production of fruit for the restaurant

Marta Czaplicka, Monika Jurzak, Ewelina Gudarowska, Adam Szewczuk

Fruit is an important element in building dishes. Besides the typical use of large quantities of fruit, such as apples or pears, dishes are enhanced by seasonal, unusual (e.g., unusually colored) fruit, available as fresh as possible—picked straight to the plate.

Delivering frozen or stored fruit often negatively impacts its appearance and flavor. The resulting carbon footprint and the need for fruit conditioning to maximize shelf life are also important considerations.

An alternative, modern, and environmentally friendly solution is the establishment of restaurant vegetable gardens, which can be planted directly on the ground, in soil, or in soilless, hydroponic, or green roof systems.

The aim of this work is to identify a set of species and varieties, as well as their cultivation conditions, for culinary purposes.

The most important characteristics of varieties and species intended for such plantings include easy control against diseases and pests, due to the need to maintain high quality and safety of the food. Furthermore, the fruit should be attractive in appearance – they can be used to decorate dishes, be presented, and be clearly visible in the dish. Attractiveness, attractiveness, and freshness should also be the distinguishing features of these fruits.

Among the species grown directly next to foodservice establishments, it will also be important to plant those whose fruit is expensive or difficult to obtain in general trade. Examples include raspberries with chewy and red fruit; wild strawberries, white currants, pink blueberries, paradise apples, repeat-bearing strawberries, serviceberries, and mini-kiwis with various fruit colors.

It is also crucial to extend the fruit harvest period as much as possible to ensure full self-sufficiency in food decoration. Using these plants to decorate the space around the restaurant is also important.

Keywords

fresh fruit, decoration, slow food, self-sufficiency, food security

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Flower garden for food decoration

Monika Jurzak, Ewelina Gudarowska, Adam Szewczuk, Magdalena Rowińska, Marta Czaplicka

Preparing attractive meals for the catering industry largely depends on the proper presentation and decoration of the dishes. In the case of floral decorations, the freshness of the product is a crucial factor in ensuring success and achieving the desired visual effect. Of course, it's important that the flower is edible and doesn't negatively impact the consumer's health. Currently, flowers (or fruits from annual plants for decoration, such as Peruvian physalis) are available in the market, but there is no clear labeling regarding their cultivation method. Products registered to protect flowers from diseases and pests for decorative, non-food purposes may be completely unacceptable when producing flowers intended for consumption.

Edible flowers or foliage can come from annual plants, perennials, or shrubs (perennials).

The aim of this paper is to identify species and varieties of edible flowers, along with their flowering dates, suitable for growing in a small garden near a catering facility. These flowers or foliage offer decorative benefits and can be used in arranging dishes or for garnishing them immediately before serving. The selection was based on high attractiveness and low cultivation and plant protection requirements, which allows for maintaining the safety of food offered to customers.

The primary plants proposed are those whose availability allows for long-term decoration of dishes, cultivation in soilless systems that do not require excessive labor. The decorative value of the catering facility itself can also be an additional advantage, allowing for the production of edible flowers in parts of the conservatory or other areas occupied by consumers.

We also propose plants whose leaf texture allows you to create attractive decorations using leaf patterns, flower patterns, or individual petals.

The created selection of species and varieties allows for a self-sufficient supply of decorative flowers and leaves over the longest possible vegetation period in the climatic conditions of Poland.

Keywords

food security, organic farming, urban farming, locally production, self-sufficiency

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The Scale and Determining Factors of Food Waste of Selected Food Products by Consumers

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Introduction

According to data from the Food and Agriculture Organization of the United Nations (FAO), more than 1 billion tons of food are wasted globally each year. Households contribute the most to this phenomenon, accounting for approximately 60% of global food waste. In Poland, the scale of the problem is also significant – it is estimated that an average of 4.5 million tons of food is wasted annually, with more than half generated by households.

Objective

The aim of the study was to identify categories of food products most susceptible to being wasted and to determine the key factors influencing their disposal in household settings.

Materials and Methods

The study was conducted using a proprietary survey questionnaire, which was made available to respondents in both electronic form (via the Google Forms platform) and traditional paper format (total n = 304). Data were collected in Microsoft Excel 365 and statistically analyzed using Statistica 13.3.

Results

The most frequently wasted food product was bread – 72% of respondents reported discarding it with varying frequency. Similarly high percentages were recorded for fruits (77%), cold cuts (75%), vegetables (73%), and dairy products (73%). The primary reason for food waste indicated by participants was the expiry of the use-by date (59%). Other frequently mentioned causes included excessive shopping and preparing overly large meal portions.

Conclusions

No significant relationship was found between place of residence and the frequency of food waste. Higher levels of food waste were observed in 3- and 4-person households, which may be due to product turnover

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and diverse dietary preferences. Impulsive shopping did not show a definitive impact, although certain tendencies were noted in selected product groups.

Keywords

food waste, households, food products

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Impact of the Addition of Green Tea Extract and Young Barley Powder on Cooking Quality, Polyphenol Content, and Antioxidant Properties of Durum Wheat Pasta

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The growing interest in health-promoting foods is driving the search for products that combine high cooking quality with functional value. Green tea (*Camellia sinensis*) extract and young barley (*Hordeum vulgare* L.) powder are particularly valued for their high contents of polyphenols and flavonoids, as well as strong antioxidant properties.

In this study, pasta was formulated using a green tea water extract (15 g of green tea leaves per 1000 mL, w/w) instead of water, while young barley powder was incorporated at levels of 2, 4, 8, and 12% by replacing semolina. Two control samples were prepared: one with semolina and water, and the other with semolina where water was replaced by green tea extract.

The aim was to evaluate the effect of these additives on the cooking properties, bioactive compound content, and antioxidant activity of pasta, both before and after cooking.

The control pasta had a minimum cooking time of 8.0 minutes. The incorporation of green tea extract alone reduced this time by approximately 6%, whereas the addition of 4-12% young barley powder with green tea extract shortened it by about 19%. The highest increase in total phenolic content—2378% above control—was recorded for 12% young barley plus green tea extract, while green tea alone increased the content by 1033%. Hydrothermal processing did not significantly affect polyphenol content, and in some cases a slight increase was observed. Flavonoids followed a similar trend, with post-cooking reductions not statistically significant. Antioxidant activity decreased on average by 5–15% after cooking.

The findings indicate that both green tea extract and young barley powder are effective, independent functional ingredients for pasta, enabling high retention of bioactive compounds even after cooking, while maintaining excellent culinary quality.

Keywords

pasta, green tea, young barley, polyphenols, functional food

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CSR on a plate – how responsible business wants to feed the world

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In an era of global challenges, such as climate change and food waste, the food service sector is increasingly becoming a space for implementing corporate social responsibility (CSR) strategies. The most important directions of action by food service companies, food producers, and restaurant chains implementing sustainable development practices will be presented. Initiatives to reduce food waste, responsibly source raw materials, support local suppliers, and educate consumers will be discussed. Particular attention will be paid to the role of cooperation between businesses, social organizations, and local governments in building a sustainable food system. The aim is to demonstrate that CSR in the food service sector is not just an image strategy but a real tool for influencing the future of nutrition and global food security.

Keywords

corporate social responsibility, food, safety

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Sensory Acceptability and Consumer Preference Mapping of Plant-Based Chocolates: An Analysis of a Dietetics Student Population

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Introduction

The surge in plant-based products and the aim to limit simple sugars drive the development of chocolates without animal-derived ingredients, raising questions about sensory acceptability and consumer choices. Sensory parameters determine acceptance and market potential. Dietetics students are a suitable cohort—future health educators with basic sensory training.

Objective

To assess sensory acceptability of selected plant-based chocolates and characterize consumer preferences among dietetics students.

Materials and Methods

Tests were conducted in a PN-EN ISO 8589:2010-compliant sensory lab (Sep 2023–Mar 2024). Four coded samples were evaluated (three commercial, one custom). Panel: n=126 (103 women, 23 men). Attributes (appearance, color, aroma, texture, taste) were rated on a custom 5-point form based on PN-ISO 22935-1 with attribute weights. Data were collected in Microsoft Excel 365 and statistically analyzed using Statistica 13.3.

Results

Significant product differences were observed for all attributes ($p < 0.001$), largest for texture ($F = 201.52$; $\eta^2 \approx 0.617$), then appearance ($F = 44.59$; $\eta^2 \approx 0.263$), color ($F = 34.07$; $\eta^2 \approx 0.214$), aroma ($F = 24.71$; $\eta^2 \approx 0.165$). For hedonic taste, the effect was small ($F = 5.87$; $\eta^2 \approx 0.045$). Post-hoc: $698 > 751$ ($p < 0.001$), $802 > 751$ ($p = 0.007$), $355 > 751$ ($p = 0.038$). Ordinal logistic regression showed aroma consistently increased odds of higher taste ratings across products (e.g., 698: $p < 0.001$); appearance was a secondary driver (802: $p = 0.031$; 355: $p < 0.001$; 698: $p = 0.049$), while color and texture showed no independent contribution.

Conclusions

Preferences for plant-based chocolates are shaped mainly by technical factors (notably texture) and perceptual attributes—aroma and appearance. Hedonic taste differences between products are subtle.

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Formulation efforts should prioritize optimizing the aromatic profile and visual quality (gloss/uniformity); improving texture alone may not raise hedonic acceptance.

Keywords

plant-based chocolate; sensory acceptability; consumer preferences; sensory analysis; ordinal logistic regression

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The Ecology of Plant Ingredients, Food Heritage, and Adaptation among Selected Diaspora Communities in Northwestern Italy

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Abstract

Introduction

Migration profoundly shapes foodways, influencing how culinary traditions are maintained, adapted, or lost in new socio-ecological contexts. This study explores how three diaspora communities (Syrian, Afghan, and Egyptian Christian Coptic) living in Northwestern Italy negotiate their plant-based culinary heritage in relation to ingredient availability, cultural identity, and integration dynamics.

Aim of the study

To document and analyse the role of food heritage in shaping culinary adaptation and cultural resilience among selected diaspora groups, highlighting how these gastronomic practices contribute to cultural continuity and local food landscapes.

Materials and methods

A multidisciplinary ethnobotanical approach was applied. Data were collected through semi-structured interviews with 64 participants. Quantitative analyses (descriptive statistics, Fisher's exact tests, and logistic regression) assessed factors influencing the maintenance of traditional dishes and ingredients. Qualitative data were thematically analysed to capture narratives of adaptation, identity, and food heritage.

Results

Distinct culinary patterns emerged, reflecting the ecological and cultural legacies of each group: horticultural Syrian traditions, Afghan pastoral influences, and Coptic plant-based diets. Adaptation strategies included ingredient substitution, shared community sourcing, and integration into local

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markets. Culinary resilience varied by group and was shaped by migration history, religion, gender, and economic context.

Conclusions

Diaspora food heritage functions as a dynamic site of cultural expression, resilience, and innovation. These practices not only preserve traditional plant-based knowledge but also enrich host gastronomy, creating opportunities for intercultural culinary exchange and sustainable gastronomic tourism.

Keywords

food heritage; culinary adaptation; diaspora; ethnobotany; cultural identity

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Yellow Lupin (*Lupinus luteus*) in Modern Bread: Scientific Aspects of Plant Protein Isolate Application in Gastronomy

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In the context of growing interest in functional and plant-forward gastronomy, this study explores the culinary and technological potential of yellow lupin (*Lupinus luteus*) protein isolate (LPI) as an ingredient for enriching wheat bread. The research combines scientific inquiry with gastronomic relevance, assessing how LPI affects dough rheology and the physicochemical and sensory qualities of bread, in comparison to traditional lupin flour (LF).

LPI was obtained via alkaline extraction and isoelectric precipitation, then incorporated into bread in two test formulations (LPI- and LF-enriched) alongside a control. Rheological characteristics were assessed using farinographic analysis, while additional tests included gluten quality, falling number, ash and moisture content, and key baking performance indicators such as yield, baking loss, and loaf volume. The bread's crumb structure and mouthfeel were evaluated using texture profile analysis (TPA), alongside measurements of porosity, crumb color, and sensory acceptance.

LPI-enriched bread demonstrated clear technological advantages, such as improved dough stability and hydration capacity, as well as maintained softness and elasticity during storage. In contrast, LF negatively affected dough and crumb texture. Sensory analysis highlighted higher consumer acceptance of the LPI bread, especially in terms of taste and crumb quality.

Beyond its functional and nutritional value, yellow lupin protein isolate shows promise as a culturally and gastronomically relevant plant-based ingredient that supports both innovation in breadmaking and broader culinary creativity grounded in sustainability and sensory appeal.

Keywords

Yellow lupin protein isolate, Plant-based gastronomy, Functional bread, Sensory quality of bread.

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