



Culinary trends in future gastronomy: A review

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ABSTRACT

The act of eating is an act that has been necessary for the survival of humanity. If we look at the adventure of food from the past to the present, this act, which was simply to fill the stomach at the beginning of human history, has now become a source of pleasure and attraction. The richness of gastronomy has increased over time, thanks to different cultures. As diversity has increased, so has intercultural interaction, making it attractive for food lovers to travel to discover new, exotic flavors. The development of technology has made life easier for people. But it has also brought innovation to gastronomy. New techniques were used to prepare food. Culinary culture expanded. These new techniques have contributed to the development of gastronomy and paved the way for the creation of new culinary trends. These trends include Refined Cuisine, Nouvelle Cuisine, Fusion Cuisine, Molecular Gastronomy, Slow Food and NbN Cuisine. Each trend has its dynamic. These trends are specialized based on techniques and ingredients used in food preparation and cooking. This review aims to analyze the main culinary trends in future gastronomy.

1. Introduction

According to Maslow's hierarchy of needs, eating is one of the basic needs that must be met to sustain life. The survival of a person is shaped by the use of the nutrients in the body. Considering the adventure of nutrition, this activity, which is done only to survive, turns into nutrition for pleasure over time. At this point, gastronomy is described as a source of pleasure and attraction. Today, people want to the searching for new flavours and textures (mouthfeel). At this point, gastronomic tourism is becoming more and more common. The main motivation in gastronomic tourism is visiting food producers, festivals, restaurants, and specialties to taste a special type of food or see a dish being produced. However, tasting a special dish, seeing the different production processes of the dishes, or eating from the hands of a famous chef are also considered in this context [1].

Food habits differ from society to society, but also from time to time within a society [2]. Food variety considered normal for one culture may be considered taboo for another culture. In addition, these dishes,

considered taboo, attract the attention of some people and travel to those regions is carried out to taste those dishes. This difference between cultures and the richness of cultures has been influential in the emergence of today's tourist profile [3]. It shows the size of the tourism industry, with 1.184.000.000 visitors worldwide in 2015 [4]. Today's tourists have a structure that likes to integrate into the culture of the region they visit and want to see all the elements of the culture. Therefore, to adapt to this change in the tourism market, regions try to differentiate themselves from other regions by highlighting local values. A tourist may come to an area for a cultural experience and, while benefiting from the local culture, historical, and natural resources, may also want to taste the dishes and different flavors [3]. Food and drink have always been part of the tourist experience. Local food and drink sometimes enhance the tourist experience and can be a good reason for repeat visits [5,6]. This shows a significant relationship between the food and beverage and tourism industries [7].

Gastronomic tourism provides an emotional bond intertwined with symbolic interaction between the local people and tourists living in the

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holiday destination and leads to a very strong development for the destination image [8]. In addition, it is emphasized that gastronomy can be used in the branding of the destination [9–11]. In recent years, factors such as tasting the dishes made in a region or the dishes made only with a raw material produced in that region and observing the production stages have started to be one of the main reasons tourists prefer an area to visit. The fact that food culture comes to the fore in tourism contributes to alternative tourism studies to be created in the region and to the sustainability of regional resources [3].

Gastronomic tourism is considered one of the most attractive possibilities offered in holiday destinations and can, therefore, play an essential role in the marketing strategy of a resort. Many researchers have shown that destination cuisines significantly impact tourists' holiday destination preferences [12]. In this review, we have conducted a narrative review of the literature. The narrative review method was chosen because it allows for a comprehensive and contextual synthesis of the existing literature on culinary trends in the future of food service. Narrative reviews provide a broader overview and critical discussion of the topic, in contrast to systematic reviews, which aim to collect and critically appraise all relevant studies on a specific question according to a predefined protocol. This approach is particularly useful for exploring diverse and evolving culinary trends, integrating findings from different studies, and identifying emerging themes and gaps in the literature. By adopting a narrative review approach, we are able to provide a more nuanced understanding of how culinary trends are developing and how they will influence the future of foodservice. To achieve this, databases such as PubMed, National Thesis Center, Science Direct, Google Scholar, and Scopus were used in the first stage. The study includes gastronomic tourism, culinary trends, food culture, molecular gastronomy, and slow food. The study also discusses the relationship between the ever-increasing new culinary trends, which are standard in gastronomy, and the dynamics of tourist destinations.

2. The importance of gastronomy

The word gastronomy comes from the Greek words *gaster* (stomach) and *nomas* (law). The definition of gastronomy is “the comprehensive knowledge provided on all matters concerning human welfare and food” [13]. The word “gastronomy,” translated from French to Turkish, is defined in the dictionary of the Turkish Language Institution as “the curiosity of eating well” and “healthful, well-arranged, pleasant, and delicious cuisine, meal order, and system.” [14].

The gastronomic character of a country or region (related to the type of food and beverages produced and consumed), gastronomic characteristics (specific food and beverages, restaurants, and dishes of an area), and gastronomic tourism (tourism focused on food and beverage) are all interconnected. However, providing a precise definition of these associations is challenging [15]. Gastronomic tourism is a form of tourism that explores the consumption, preparation, presentation of cuisine, meal systems, and eating styles of foods in a different culinary culture [16]. Gastronomic tourism is a concept that describes people's experiences with foods and these foods in general [8]. It is a science, art, or good eating habit that examines the connection between culture and food [17]. In summary, gastronomic tourism is a concept that describes people's experiences with food [18]. Gastronomic tourism is a type of tourism that can contribute significantly to economic and social development due to the place of food and beverage in the tourism industry. The general connections of gastronomic tourism are shown in Fig. 1 [15].

Gastronomic tourism has emerged as a popular segment within the travel industry for years because food is one of the best ways for visitors to experience new and exotic places. Tourists expect to see new places, learn about new cultures, and savor new tastes and experiences. For almost all tourists, eating is one of the top three favorite activities while traveling. Research has shown a strong correlation between tourists interested in wine and cuisine and those interested in museums, shows,

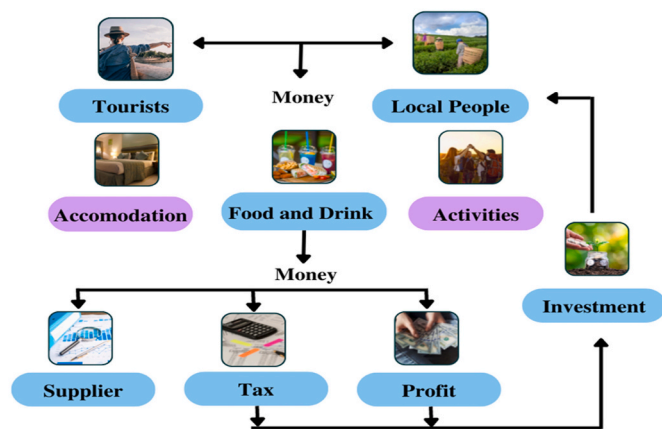


Fig. 1. Important links in the importance of gastronomy [15].

shopping, music, film festivals, and recreational activities. Unlike other tourism activities, gastronomy offers year-round appeal [19]. Gastronomic tourism is a type of tourism that is shown as a valid segment that destinations can market and can also be an opportunity for regions that lack natural beauty such as sea or snow [20].

The developing competitive environment in tourism now highlights culinary cultures alongside historical values, sea, sun, and beaches. Gastronomy has become one of the most crucial factors for tourists when choosing their holiday destinations. For instance, Italy promotes its cultural heritage and varied pasta and pizza, with the Tuscany region globally renowned for its wine. Similarly, France emphasizes the wines of Bordeaux and Bourgogne to showcase its culinary excellence. Spanish cuisine is synonymous with “paella,” a famous dish from the Valencia region, and tapas, popular appetizers. A study examining Malaysia's food image found that the country's diverse and reasonably priced cuisine significantly influences tourist satisfaction and their desire to return, based on a survey of 392 tourists [21].

3. Historical process of gastronomy

Eating and drinking activities are of great importance in people's daily lives. The need for food and drink is one of the most important needs for people to continue living. It is the first step in Maslow's hierarchy of needs to be satisfied [18,22]. The first humans met their food needs by hunting and gathering. In the next period they began to farm. They ate wild animals, fish, naturally growing fruits, tree leaves, and plant roots, and traveled to places where they could find food [23].

After the settled life, nutrition for people, rather than filling their stomachs, has also improved in setting the table and using different foods at the table [24]. It is stated that over time, people, unlike all other living beings, turn one of their most basic needs, nutrition, into an art [25].

The development of technology has simplified food preparation, leading to the replacement of traditional ingredients and methods, resulting in changes in the taste and flavor of food [24]. The shift from an industrial to an information society has intensified time demands on individuals, reducing the time spent on food and beverage activities and leading to a fast-food diet [22]. As shown in Fig. 2, the historical development of the kitchen is schematized [26].

There is an ongoing change in global food and culinary cultures, explained in three waves. The first wave (1400–1800) involved food and beverages becoming trade elements between Asia, the New World, and Europe. The second wave, in the 17th century, saw significant human movement from Europe to America, bringing their food and culture. The third wave, in the information age, involves global information sharing, transforming food and drink behaviors worldwide. In the 20th centuries, there was a large number of human movements from Europe to America.

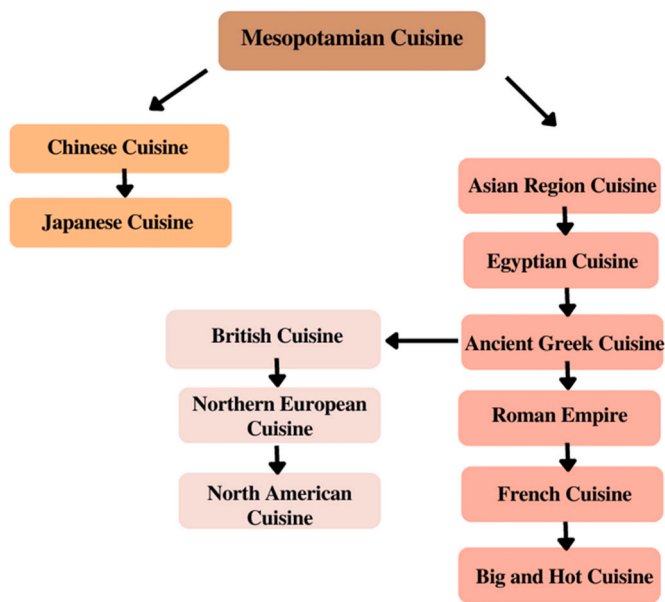


Fig. 2. The development of the kitchen [26].

People also brought their food and culture to America as part of the resettlement process. Finally, in the third wave that mankind is passing through in the information age, where it is believed that the world has become a global village, the change in the sharing of information about food and drink among people has also changed people’s behavior towards food and drink. As a result, the globalization of food and beverages has affected the eating behaviors of individuals and societies [27, 28]. Gastronomy places humans at its core and encompasses the study of “why” and “how” related to food and beverage production and consumption. It covers a wide range of subjects, behaviors, and events, making it a significant cultural tool. Gastronomy draws from natural sciences (physics, chemistry, biology) and social sciences (economy, sociology, anthropology, psychology, management, marketing), making it a rich research area for both fields [29].

4. New Approaches in gastronomy: culinary trends

In this section, the concepts of “Fusion Cuisine,” “Molecular Gastronomy,” “Slow Food,” “Nouvelle Cuisine,” “Haute Cuisine,” and “NbN Cuisine,” which are the new trends in gastronomy cuisines in recent years, will be explained. Fig. 3 shows a concept map with these

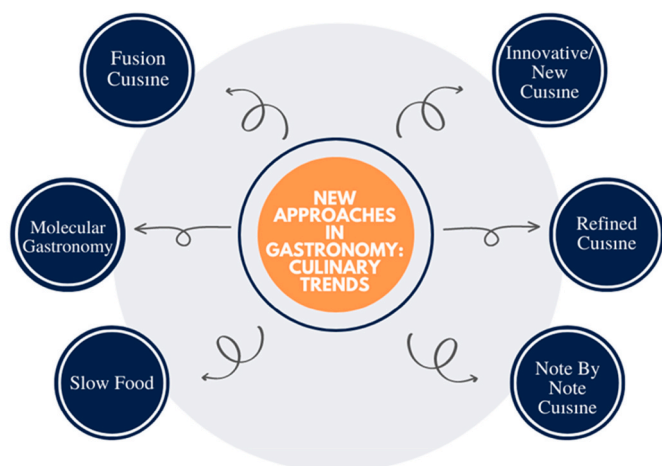


Fig. 3. New approaches in gastronomy culinary trends.

concepts.

4.1. Fusion kitchen

The dictionary meaning of “fusion,” essentially a physics term, is melting, joining, and boiling [30]. Fusion cuisine is a creative and innovative technique that mixes and combines cooking methods and ingredients from different nations and regions on the same plate. It emerged in the 1980s, combining Western techniques with Far Eastern techniques and materials. The term was first coined by Miami chef Norman Van Aiken. Initially called Asian Fusion, this style has since evolved to include numerous other fusion cuisines [31,32]. With this in mind, the guests’ expectations, especially “experiencing something different” and “going out of the routine,” are satisfied [31].

It can be said that a universal spirit emerged with the emergence of a concept called fusion cuisine [33]. Fusion cuisine creates a “multinational” product quality by using techniques and materials from the cuisines of more than one country. On the palate, there are features belonging to only one nation, culinary techniques belonging to that nation, and techniques and cultural features belonging to more than one nation [32]. This multinational takes food to global dimensions. So much so that the menus of restaurants offering fusion cuisine products contain a mixt, the world cuisine cultures [34,35]. The fact that information, people, and materials are circulating worldwide has undoubtedly changed culinary habits. The best proof of this is the variety of products on supermarket shelves [36]. The main feature of this culinary trend, widely discussed in recent years, is the combination of culinary traditions from ethnic groups living in the United States, creating unique dishes. This trend is particularly prominent on the Pacific coast [37]. Fusion cuisine applications are evaluated within the scope of the globalization of food.

For example, it states that Turkish cuisine was shaped by the simple food culture of Central Asia, which met the rich Seljuk and Ottoman cuisine [38]. On the contrary, Mil (2022) described fusion cuisine as a new trend that emerged due to the influence of the old times and the current cuisine trend by bringing different national cuisines together on the same plate due to a conscious effort for a purpose [35]. The “Eggplant Begendi Souffle,” a fusion of the Turkish eggplant dish and French cheese soufflé, exemplifies the synthesis of Turkish and French cuisines [34].

Examples of fusion cuisine are given in Fig. 4 [39].

Industrial food production and the lack of culturally skilled specialists are shifting food preferences from traditional, cultural foods to homogenized foods. Chefs, experts, and staff are trying to mix different cultures and foods to cope with changing consumer expectations [40]. As a result, the number of fusion cuisines and dishes produced with this technique is increasing. Table 1 includes fusion cuisines from all over the world and a well-known food sample for each cuisine.

With the increasing interest in fusion cuisine, an increase has been observed in the number of studies on this concept. As a result of literature searches, some fusion kitchen studies were found. A study was conducted to examine the effects of Indian fusion cuisine on increased guest satisfaction in Delhi NCR. This study aimed to develop new techniques in Indian fusion cuisine [41]. Dimoula et al. [42] investigated the characteristics of fusion cuisine and cooking techniques during this period by analyzing cooking vessels from the Middle and Late Bronze Age period. In Meerut, a study was conducted on the growth potential of fusion cuisine. The results of the research study revealed that many fusion dishes are currently being developed and served in food outlets in Meerut City [43]. Chun and L. Neill (44) addressed the link between food taste and ethnic acceptance in dominant cultures. In particular, this study examined evaluations of fusion Korean food in Auckland, Aotearoa New Zealand. As a result, it was recognized that food plays an important role in constructs of identity and social acceptance [44]. In another study, a study was conducted to reveal the characteristics of fusion influences on the cuisine and culinary culture of



Fig. 4. Fusion Cuisine Examples [39].

Table 1
Global fusion cuisine dishes.

Fusion Cuisine	Regions	Dish
Chino-Latino Fusion Cuisine	China and Latin America	Stir Fry Steak Encebollado
Tex-Mex Fusion Cuisine	Texas and Mexico	Brisket Enchiladas Nuevo Leon
Cape May Cuisine	Malaysia, India, Indonesia and South Africa	South African Bobotie
Garifuna Cuisine	Central America's Caribbean coast	Fish balls & coconut soup
New Mexican Cuisine	American Indians and Spain	Beef and chicken enchiladas Curry laksa
Malay-Chinese Cuisine	Kuala Lumpur	
Cajun Cuisine	France, Canada, Africa, and Native America	Jambalaya
Chifa Cuisine	China and Peruvia	Lomo Saltado
Indian-Chinese Cuisine	Kolkata	Schezwan
Arequipa Cuisine	Peru	Rocoto Relleno
Hawaiian Fusion cuisine	Hawaii and Asia	Loco Moco
Indian-Portuguese Cuisine	Western India and Portuguese	Vada Pav
Nikei Cuisine	Peruvian-Japanese culinary fusion	Salmon and Quinoa Sashimi

Banat Bulgarians. Symbolic dishes and ingredients are presented, marking the main points of the culinary excursion in the Banat Bulgarians region and identifying their contribution to the development of culinary tourism [45]. According to the National Restaurant Association, ethnic fusion cuisine has been identified as the most important food trend of the next decade. Therefore, it is important to understand consumer behavior in this fast-growing sector and develop appropriate marketing strategies for fusion restaurant brands. Liu et al. [46] examined the implications for marketing strategies of ethnic fusion restaurants.

4.2. Molecular gastronomy

Nicholas Kurti, Professor of Physics at Oxford University, was asked to present a paper on culinary science at the traditional meetings of the

British Royal Institution in 1969. Kurti is a physicist who worked on the atomic bomb during World War II, and it is known that his favorite hobby was cooking. For the first time, this paper focused on combining cuisine and physics [47]. Since the late 1980s, scientific studies on food preparation methods and techniques have intensified. In the mid-1990s, chemists and physicists began influencing cooks to use new techniques and materials in food preparation, leading to the development of “molecular gastronomy” [48].

Nicholas Kurti (1908–1998) was a pioneer in gastronomy, teaching ‘Physics in the Kitchen’ at the Royal Institute. He examined the physical chemistry of cooking and organized workshops on the subject in the 1990s after meeting physical chemist Herve This. Kurti encouraged interest in this field with his famous remark: ‘It is a pity that we know the temperature inside the stars, but we don’t know the temperature inside a soufflé’ [49].

According to Herve, molecular gastronomy is “an interdisciplinary science that explains the physicochemical changes that occur during cooking and the sensory perception caused by the components that make up the food [50]. According to another definition, foodstuffs also consist of micro-sized molecules, which make up flavors and odors. For this reason, the term is called “molecular gastronomy” because it combines the molecules that make up the nutrients and gastronomy [51]. Instead of a scientific approach like Molecular Gastronomy, which examines the nutritional value of food and its benefits to human health, some activities focus on discovering new flavors supported by physical and chemical research [52]. In Fig. 5, the stages of the emergence of a

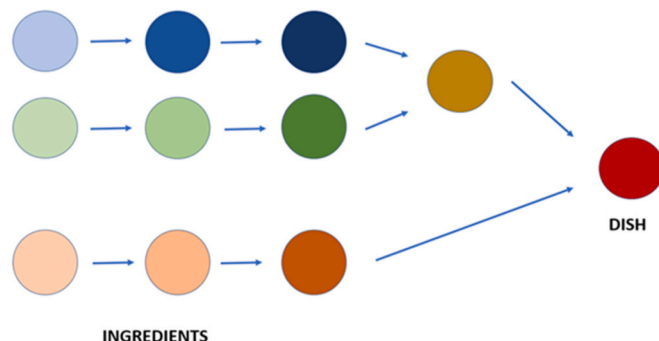


Fig. 5. Modeling the formation stages of a meal in molecular gastronomy.

meal in molecular gastronomy are modeled.

Molecular gastronomy aims to understand, control, and explain the molecular, physical, chemical, and structural changes that occur during food preparation and consumption. It involves observation, hypothesis creation and testing, high-control experiments, and external validation [53]. Meals are produced after converging steps from different food ingredients towards a unique product. Molecular and physical gastronomy is a scientific discipline that focuses on the mechanisms of events that occur during food production [54].

One of the remarkable areas of interest in molecular gastronomy is the presentation styles in food. For example, the world-famous Apple caviar was created in the El Bulli Restaurant. Tiny beads were obtained using apple juice and calcium alginate [55]. In recent years, molecular drinks, a branch of molecular gastronomy (molecular within the scope of drinking), raki has been made to be eaten with a fork. Sometimes, raki pieces, made into beads like tiny pearls, are placed in a glass filled with water and chewed while drinking the water. Applications such as tzatziki in the form of foam, fruit juices in the form of spaghetti, and beverages in the form of jelly are some of the innovations in molecular gastronomy [56].

In molecular gastronomy, liquid nitrogen, enzymes, and lasers create new features and shapes in foods and beverages. Experts describe this approach as a “scientific examination of the properties of food and beverages that give people pleasure and transform them accordingly” [47]. It is thought that molecular gastronomy can be associated with health in the future. Individuals with anorexia can prefer it due to differences in appearance and presentation. It is believed to be chosen because of its potential to encourage food consumption in children, patients, and the elderly [53]. Some of the methods and techniques used in molecular cuisine are sous vide cooking (under vacuum) technique, spherical liquids technique, gelling, foaming, using liquid nitrogen, and rotary evaporation techniques [57,58].

Science-focused “Science and Cooking” events are now held in colleges, high schools, and universities. Specialized colleges, like culinary schools, increasingly host molecular gastronomy events. Today, all new French culinary school teachers are trained in molecular gastronomy to conduct experiments and integrate science and cooking activities into their classrooms [59]. With this increasing interest in molecular gastronomy, an increase in the number of studies on this concept has been observed. Some studies carried out within the scope of “Molecular Gastronomy” in recent years. Serna-Gallén et al. [60], presented the results of an educational innovation aimed at providing an alternative way to learn about the world of molecular gastronomy in chemistry classes as a way to review stoichiometry. Elsayed et al. [61], examined the effect of applying molecular gastronomy techniques in Cairo Egyptian restaurants on achieving competitive advantage dimensions. Many studies have been conducted on the development and impacts of molecular gastronomy on tourism, but limited research has been conducted on chefs’ perceptions. Seal et al. [62] aimed to gain insight into what luxury hotel chefs in India think about the past, present, and future of molecular gastronomy as a culinary trend. The study concluded that while there was limited acceptance in the past, today’s Indian diners are more open to new trends, and chefs are expected to be much more accepting of molecular gastronomy-based foods in the future. Gomes et al. [63], aimed to make a valuable contribution to demystify the use of specified additives in food processing and thus contribute to increased consumer sovereignty. In the study, some physicochemical properties of commonly used additives of types E400 to E490 were simply revised using models derived from molecular gastronomy. In a study, 97 hospitality workers from the territory of the Republic of Serbia were surveyed. The study gained knowledge about food preparation and supply, as well as perspectives for its further development and introduction to catering facilities in Serbia [64]. Slavich et al. [65], aimed to analyze the labeling debates underlying the new culinary style introduced as “molecular gastronomy”. Another study concluded that interdisciplinary teaching and learning within molecular gastronomy education was

beneficial for Culinary Arts and Food Science student participants [66]. In another study, it was revealed that cross-linking of calcium ion in alginate provides spheroidization with pseudoplastic flow in molecular gastronomy [67].

4.3. Slow food

Nutritional habits and diets significantly impact an individual’s health, influenced by genetic and environmental factors. Globalization has accelerated the pace of daily life, leading to a race against time. As a result, the time devoted to eating has become shorter and the quality of meals has declined. With the thought that it reduces the communication between people and the pleasure taken from eating, “Slow Food” has emerged as a reaction movement [68]. Founded in 1986 by sociologist and journalist Carlo Petrini in Northern Italy, the movement has evolved significantly. Petrini and his friends viewed the opening of a 1200 m² fast food restaurant in Piazza di Spagna, Rome, on March 20, 1986, as an attack on Italian culture. They started a movement against fast food, which rejects traditional cuisine and focuses solely on profit. For this purpose, Gamberro prepared a manifesto and published it on the first page of *Rosso* on November 3, 1987 [69].

The primary purpose of the Slow Food movement is to protect the traditional table taste and food culture from the fast and living culture of globalization [70]. The Slow Food Movement is a member-supported, non-profit international organization, and its global headquarters is in Bra, Italy [71]. The symbol of the Slow Food movement is the snail. With this symbol, the snail progresses slowly, cautiously but resolutely, crossing unexpected distances; while doing this, it leaves a thin trace in the places it passes through [72]. The snail spends a lot of effort and works hard to get ahead during its life journey. Slow Food expands this mentality; slowness is defined as the preference for nature instead of civilization [73].

The general objectives of the Slow Food movement are to protect traditional food culture, defend global agricultural biodiversity, protect all animal breeds and plant species from the standardization of tastes, support consumer awareness, and ensure the sustainability of cultural identities [74]. At the same time, it aims to organize the development and dissemination of taste education, advocate biodiversity, and organize organizations that bring together the producers of excellent foods [73]. The three principles of Slow Food’s food and food production philosophy are given in Fig. 6.

The shorter the chain between the producer and the consumer, the fresher and healthier the food, and the more the product/food is included in the Slow Food philosophy [75]. Carlo Petrini emphasized that the idea that the Slow Food Movement is not against globalization is actually “virtuous globalization.” [76]. This movement represents everything Fast Food businesses can’t offer people [77]. Slow food is located at the intersection of ecology and gastronomy, ethical values, and taste. At the same time, it believes in the new concept of gastronomy, which accepts that there are very strong ties between people, food, nature, and culture [78].

Cittaslow is a movement initiated to apply the principles of the Slow Food Movement, started by Italian Carlo Petrini in 1986, to daily urban life. Supported by Petrini and some Italian mayors, the Cittaslow Movement aims to adapt the Slow Food philosophy to urban environments. The term “Cittaslow” combines the Italian word “Citta” (City) and the English word “Slow.” [79,80]. Cittaslow is defined as “places where residents and administrators care and value local history and benefit from different local resources for sustainable and better development [81].

As a result of literature searches, some slow food studies were found. Limited research has been dedicated to exploring the tasting experience of slow food and wine, as well as the market that consumes them. Huang [82] provided theoretical contributions to the slow food literature and managerial implications for tourism marketers to create new marketing strategies. In another study, Fader et al. [83] attempted to demonstrate



Fig. 6. Three principles of food and food production philosophy in “Slow Food.”

how the Relationship Barometer could be applied to the case of wild and farmed salmon, which underpins the ‘Slow Fish’ movement. In another study, the components of slow food destination image were identified [84]. In a study conducted in Turkey, the aim was to develop a valid and reliable scale to assess students’ awareness of slow food. Additionally, the study aimed to educate students about slow food and evaluate the effectiveness of this training. The results indicated a positive increase in knowledge levels among both male and female students following the training [85]. Bachnik [86], evaluated the extent to which Thai people are attached to slow food or fast-food culture. Valduga [87], aimed to characterize the Slow Food network, its organizational structure, and analyze the geographical distribution of convivia in Brazil. In a study, the perception of slow food by university students studying in the department of gastronomy and culinary arts was investigated. The findings revealed that students in the gastronomy and culinary arts departments developed awareness about the concept of slow food [88]. In another study, consumer motivations and experiences at slow food festivals in rural tourism destinations were explored. The findings identified three primary motivations behind repeated consumer visits to slow food festivals in rural destinations: experiencing authentic local cuisine, immersing in the culture and lifestyles of host communities, and forming connections with local communities and fellow consumers at slow food festivals [89].

4.4. *Nouvelle cuisine: innovative/new cuisine*

The New Cuisine trend emphasizes the appearance of food over taste, catering to both gourmets and ordinary people. To achieve this, portions are reduced, and a “Nature Morte” painting style is preferred, with dishes presented with decorative elements [81]. Unlike classical French cuisine, Nouvelle Cuisine consists of light meals emphasizing presentation. The term Nouvelle Cuisine has been used many times in French culinary history. Another excellent change movement that emerged in France and significantly affected the cuisines of other countries began in the 1730s [90]. The works of Vincent La Chapelle, François Marin, and Menon in the 1740s were defined as Nouvelle Cuisine. This is how Georges Auguste Escoffier’s meals were described in the 1880s and

1890s. Escoffier was the first to design modern menus by listing the dishes in the order they are served [90]. Its contemporary usage has been popularized by Andre Gayot, Henri Gault, and Christian Millau to describe the work of chefs like Paul Bocuse, Alain Chapel, Jean and Pierre Troisgros, Michel Guerard, Roger Verge, and Raymond Oliver, many of whom were students of Fernand Point. Paul Bocuse claims that Gault first used the term to describe the dishes Bocuse and his team prepared for the “first flight of Concorde” in 1969.

This trend, which Gault and Millau wrote about, is a reaction against the classic French cuisine, positioned as “orthodox” by Escoffier. These chefs innovate, modernize, and make new inventions in cooking. In the cookbooks they wrote, they described their work around them. Their job is more about introducing new flavors than the appearance of the plates on offer.

Emphasizing simplicity and elegance while creating dishes, Nouvelle Cuisine should not be confused with Cuisine Minceur, designed by Michel Guerard as SPA dishes. Also, according to some claims, the Second World War played an essential role in the emergence of Nouvelle Cuisine. It developed as a natural consequence of the shortage of animal food during the German occupation. Matching certain regions with certain foods and beverages allows the creation of a region-specific gastronomic identity [91]. For example, champagne, perceived as the best quality sparkling wine in the world, can only be produced from grapes in the vineyards of the champagne region of France. Thus, champagne and champagne regions are matched, and a region-specific identity can be created [92]. The identity movement in the French new cuisine (Nouvelle Cuisine) is carried out in all parts of the kitchen, and it is stated that the five dimensions of this change are culinary discourse or culinary rhetoric, cooking rules, original ingredients, the role of the cook and menu management.

This new movement, described as a challenge to “Classic Haute Cuisine,” reflects the rapidly developing avant-garde trends in social, political, and artistic fields, extending to kitchens, culinary art, and cooking. Consequently, innovative movements emerging from the late 1960s are generally called avant-garde kitchen movements. Common characteristics of chefs like Andre Gayot, Henri Gault, Christian Millau, and Fernand Point’s students—Paul Bocuse, Alain Chapel, Jean and Pierre Troisgros, Michel Guerard, Roger Verge, and Raymond Oliver—define this movement as “Nouvelle Cuisine.” 10 commandments of the nouvelle cuisine is given in Table 2 [93].

4.5. *Refined kitchen (haute cuisine)*

The year 1533 marked a turning point in French cuisine, characterized by traditional methods and limited materials until the mid-16th century. The marriage of French crown prince Henry II to Florentine

Table 2
10 commandments of the nouvelle cuisine.

Common Characteristics of Innovative Chefs	
1	The cooking time for most foods, such as fish, seafood, game meats, red meats, and green vegetables, has been significantly reduced to preserve the natural flavors. The steam cooking method has also started to be used more for the same reason.
2	The freshest ingredients are preferred whenever possible.
3	More extensive menus have been replaced by shorter menus.
4	Marinades in red meats and game meats have been discontinued.
5	Espanyol and bechamel were abandoned, and instead of these, Flavoring the dishes with fresh spices, quality butter, lemon juice, and vinegar became common.
6	The overly complex methods of cooking have been abandoned.
7	For these innovative chefs, local cuisine Has replaced classical cuisine as a source of inspiration.
8	New techniques and modern tools were adopted and widely used.
9	More attention has been paid to the nutritional needs of consumers.
10	These highly creative chefs have successfully blended different ingredients. To produce many new combinations.

Catherine de Medici brought many artists, private servants, and her cook team to the French palace, introducing Italian culinary culture. This infusion of Italian culture radically changed French palace cuisine, significantly influencing food consumption, table manners, and the content of meals [94]. Marie-Antoine Carême (1784–1833), a French pâtissier from the nineteenth century, is regarded as the first celebrity chef to gain international fame and is credited with inventing the traditional chef's hat, known as the toque [95]. He authored multiple culinary books, the most notable being the encyclopedic “Art of French Cookery,” which was translated in London in 1836 [96]. Jean Anthelme Brillat-Savarin, born in 1755 to a family of lawyers, secretly published in 1825 what has become an indelible commentary on early nineteenth-century gastronomy, just two months prior to his death in February 1826 [97]. He contributed to the cuisine with his book ‘Physiology of Taste’ in 1826 [98].

The radical transformation that took place in the French palace cuisine after Catherin de Medici also effectively differentiated between the public cuisine and the palace cuisine. In Europe, the “refined cuisine” called “haute cuisine”, is not only a rich version of folk cuisine but also radically differs from folk cuisine in many important points, such as the materials used, cooking techniques, and presentation styles, was formed in France in the middle of the 17th century. Took place in. Two important factors played an essential role in the development of refined cuisine, which especially appealed to the palace environment and the aristocratic class. Another important factor in the formation of refined cuisine is the book “The French Chef” (Le Cuisinier Français) published by François Pierre in 1651. This book revolutionized French cuisine and became a guide for later books [99]. In Table 3, the general results of the change that started in French cuisine with the book “Le Cuisinier François” are given.

Today, Haute Cuisine has become popular, primarily through television cooking shows, and today, chefs can, in some cases, be the entire focus of a restaurant’s clientele [101,102]. Haute Cuisine is the pinnacle of the restaurant industry. Quantitatively, it plays a key role in qualitative terms, although it represents a marginal portion of the industry and is less than 0.5 percent in volume [103]. Haute Cuisine is also culturally significant and a manifestation of national branding. It is a kind of “gastro nationalism” and an expression of identity through food and local culture [104,105].

Although the emergence of refined cuisine dates back to ancient times, it still maintains its attractiveness today. Many studies have observed different effects and results on refined kitchens, which have undergone significant changes in recent years. As a result of literature searches, “Haute Cuisine” studies were found. Escalante et al. [106] aimed to analyze the relationships between haute cuisine chefs and identify which elements of these relationships enhance the production of ideas and the exchange of knowledge. Moreover, the study applied a qualitative methodology based on the analysis of interviews with almost

all Michelin-starred chefs in Catalonia, Spain. In another study, researchers explored how the representation and attainment of haute cuisine excellence are portrayed on the websites of three-star restaurants and compared with external authoritative food guides. Findings revealed five semantic universes demonstrating that restaurants and food guides do not necessarily emphasize the same elements of culinary excellence [107]. A. Mengual-Recuerda et al., (108) aimed to analyze the impact of characteristic stimuli of a high-level gastronomic experience at a two -Michelin-starred restaurant on consumers. The results indicated that dishes had a greater influence on the level of interest than wines, and both had different emotional effects at different moments of the experience due to their timing [108]. It could serve as a research agenda for future research in haute cuisine, including the extension of the innovative perspective to the restaurant and its business model [109]. Louisgrand and Islam (110) proposed a relational-epistemic approach to aesthetic collaboration, demonstrating how aesthetic judgment and relational positioning mutually shape how chef candidates understand their creative outputs through an in-depth case study of a French haute cuisine program in Shanghai, China [110]. In one study, the motivations and mechanisms used by chef entrepreneurs to renew their business models are examined through the experience of Italian chef Romito. The study examines motivations such as creative freedom, reputation, legitimacy and the need for growth; Mechanisms such as strategic thinking, standardization, cooperation and internationalization are emphasized [111]. Alborns Garrigos et al., (112) examined gender differences in the career paths of successful chefs, including barriers, success factors, and entrepreneurial pathways. The study found two main differences between female chefs and their male counterparts: a greater need for mentorship and higher job satisfaction when working independently [112]. Lane [113], has previously examined the flow of culinary knowledge, expertise and practitioners from peripheral locations to London as a global hub.

New Nordic Cuisine (NNC) emphasizes the integration of local, sustainable, and seasonal ingredients into innovative and culturally resonant dishes. It seeks to transform traditional Nordic food into modern gastronomic experiences, often blurring the lines between food and art. NNC has been pivotal in highlighting the importance of local produce and ethical sourcing, influencing chefs to focus on foraged ingredients and the unique characteristics of their environment [114,115]. This approach not only elevates the dining experience but also fosters a deeper connection between diners and their food, encouraging them to appreciate the origins and stories behind each ingredient [114]. The cuisine’s focus on creativity and innovation has led to the development of new techniques and dishes that challenge conventional culinary boundaries while remaining accessible and meaningful to a broader audience [114,115]. This culinary movement reflects a holistic understanding of gastronomy, where the dining experience is enriched by the interplay of tradition, sustainability, and artistic expression [114,115].

4.6. NbN kitchen (note by note cuisine)

NbN Kitchen, defined as ‘cooking using pure compounds,’ was developed under the leadership of Herve This, a founder of molecular gastronomy. This technique uses pure compounds or mixtures of compounds instead of traditional ingredients like vegetables, fruits, meat, or fish. Herve This compared traditional dishes to music played with traditional instruments, while NbN is likened to acoustic music performed only through sound waves (notes). The term “note by note,” which gives its name to this method, implies food made with pure compounds, akin to musical notes [116].

This method combines the compounds in plant and animal tissues to form compounds that do not occur spontaneously in nature after decomposition. Compounds such as saccharides, amino acids, glycerides, pigments, peptides, and vitamins released by this method are widely used in the food industry. Still, the point mentioned here is that this method enters the kitchens for cooking. The benefits of the NbN

Table 3

The general results of the change started in French cuisine with the book “Le Cuisinier François” [90,100].

1	Cooking methods that reveal the taste of meat at the highest level have begun to be preferred.
2	Instead of exotic and pungent spices such as cinnamon, cumin, nutmeg, cardamom, ginger, and black cumin, which were used extensively during the Middle Ages, the use of herbs such as chervil, bay leaves, sage, tarragon, and thyme increased.
3	Vegetables such as asparagus, cauliflower, peas, and cucumbers, which are not included in French cuisine, have begun to be used.
4	Improving transport facilities for fresh consumption of meat, fish, and vegetables has become widespread.
5	Heavy sauces that suppress entirely the taste of the food have been replaced by more balanced sauces aiming to achieve harmony in taste and appearance.
6	The tradition of using sweet and salty ingredients in the same dish or serving them at the same time has been largely abandoned, and a new form of serving has been gained, first salty and then sweet.

method compared to traditional methods can be listed as follows [117].

- After being separated from plant and animal tissues, pure compounds can be recombined in different ways to find new aromas and flavors that have not been discovered before.
- The NbN method can separate and eliminate disease-causing factors in foods, such as cancer, obesity, and diabetes.
- Toxic and allergic substances, which are dangerous for human health, can be removed from foods with this method, and the risk of poisoning and allergic reactions can be eliminated.

Table 4 shows a dinner menu prepared with Note-by-Note cooking style at the Dublin Institute of Technology, the content of this menu, and the preparation stages [118].

In recent years, there have been some studies carried out within the scope of the note-by-note (NbN) cuisine trend. R. Burke and P. Danaher (2022) aimed to develop a 3D-printable customized note-by-note prototype recipe [119]. In a study, the sensory characteristics of meals, consumers' liking of fundamental qualities, and consumers' facial expressions in response to meals were investigated. The research concluded that the expected liking of NbN meals was higher than the experienced liking [120]. In the master thesis titled Creating A Layered 'Suspension' Dessert Using Compounds Only and Note-by-note Techniques, a layered dessert with tropical flavors was created using only compounds and suspension NbN techniques [121]. R. Burke and P. Danaher (2018) sought to create one or more Nota dishes to meet the requirements of the annual International Note by Note contest held in Paris, France [122].

5. Conclusion

Generally, when discussing gastronomic tourism, food or beverage consumption at any business during a visit is considered essential for different travel purposes. It is a prerequisite for tourists to engage in these activities, whether as their primary or secondary travel purpose, and fully immerse themselves after arriving at the destination. Participation in various stages of the food and beverage process, from the field to the table and showing interest in this area, is a key aspect of gastronomic tourism. As a result, gastronomy, which will be considered an attraction that can be used in terms of tourism in the countries, will, in a way, contribute to the survival of the country's culinary culture. In addition, the importance of gastronomic tourism should be aware of the importance of promoting countries' regional or national development. For this reason, it should not be ignored that following new culinary trends, which are increasing in number day by day in the field of gastronomy, and bringing innovations suitable for these trends to the consumer will contribute significantly to the dynamics of a touristic destination.

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Seydi Yıkmaş: Writing – original draft, Software, Conceptualization. **Melikenur Türköl:** Writing – original draft, Validation, Software, Resources, Conceptualization. **Gholamreza Abdi:** Writing – review & editing, Writing – original draft, Supervision, Software, Conceptualization. **Melike İmre:** Writing – original draft. **Gözde Alkan:** Writing – original draft. **Sinem Türk Aslan:** Writing – original draft. **Roshina Rabail:** Writing – original draft. **Rana Muhammad Aadil:** Writing –

Table 4

“Roast dinner with a twist”.

Roast dinner with a twist	
Note-by-note cooks create meals from food's constituent chemicals. Here's a lovely roast for you to attempt at home.	
Roast chicken tiles	Lemon potato mash
Ingredients: 275 mL water, 30 g maltodextrin, 10 g icing sugar. 1.5 g gellan gum, three drops of 2-methyl-3-furan thiol	Ingredients: 2 g dried citric acid, 120 mL methional oil, 80 g maltodextrin, one drop yellow food coloring.
Mix all the dry ingredients and slowly stir in the liquid. Bring to a simmer before putting the bowl in a basin of ice to cool. Stir while cooling until cold. Spread on a non-stick tray and bake at 100 °C for 80 min until crisp.	Blend the ingredients until a fine soil-like texture is achieved.
Potato meringue	Rosemary pearls
Ingredients: 150 mL water. 150 g sucrose, 60 mL methional oil. 30 g albumin powder	Ingredients: 396 mL water, 2 g sodium alginate, 1 g calcium chloride, one drop of rosemary flavor (made from alpha-pinene, camphor, eucalyptol, verbenone, and borneol).
Place the ingredients in a bowl and whip until light, soft peaks have formed. Spread the mixture on a non-stick tray and bake at so °c for 5 h.	Blend the flavoring—sodium alginate and half the water.
	Place the bowl in the chamber of a vacuum-packing machine. Vacuum on full pressure. Stop before the liquid overflows. Repeat until all the air bubbles are gone.
	Mix the remaining water and calcium chloride, adding droplets of the sodium alginate mixture. When the sodium alginate reacts with the calcium, it forms pearls of gel encasing the liquid. Serve immediately.

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Declaration of competing interest

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

Data availability

No data was used for the research described in the article.

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