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A COMPARATIVE STUDY ON CONSUMER PREFERENCES TO MOLECULAR GASTRONOMY IN COMPARISON TO INDIAN DESSERTS

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ABSTRACT

This study investigates consumer preferences for molecular gastronomy in comparison to traditional Indian desserts. With the rise of modernist cuisine, molecular gastronomy has gained attention for its innovative techniques, sensory appeal, and artistic presentation. However, Indian desserts—rooted in cultural heritage and authentic flavours remain popular among diverse consumer segments. The research employs a mixed-methods approach, combining quantitative surveys and qualitative interviews, to assess factors influencing preference, including taste perception, presentation, novelty, cultural familiarity, and willingness to pay. A sample of 300 participants from urban metropolitan areas was analysed using descriptive statistics and comparative analysis. Results indicate that while molecular gastronomy attracts younger consumers and culinary adventurers due to novelty and experiential dining, Indian desserts maintain stronger overall preference grounded in cultural tradition, emotional attachment, and perceived value. Key differences emerged in the importance of sensory familiarity versus experiential innovation, with Indian desserts scoring higher on comfort and tradition, and molecular gastronomy scoring higher on creativity and uniqueness. The findings contribute to understanding the dynamics of evolving food preferences in contemporary culinary landscapes and offer insights for restaurateurs, marketers, and culinary educators aiming to balance innovation with tradition.

INTRODUCTION

Molecular gastronomy is a subdiscipline of food science that studies the physical and chemical changes that occur during cooking. It views cooking as having three components: social, artistic, and technical. As a modern style of cuisine, it applies scientific principles and technological innovations to create new culinary experiences. The term *molecular gastronomy* was coined in 1988 by Oxford physicist Nicholas Kurti and French chemist Hervé This. Later, it became the name of a scientific discipline and a series of workshops held in Erice, Italy, bringing together scientists and chefs to explore the science behind traditional cooking methods. Some chefs prefer alternative terms such as modernist cuisine or experimental cooking.

Molecular gastronomy uses innovative techniques to enhance flavour, texture, and presentation. **Spherification** involves forming liquid-filled spheres with thin membranes that burst in the mouth, releasing intense flavours. **Sous vide**, meaning “under vacuum,” is a technique where food is cooked in sealed pouches at precise temperatures, ensuring even cooking, moisture retention, and consistent results. **Gelification** transforms liquids into gel-like solids using natural gelling agents such as agar-agar, gelatine, carrageenan, and pectin. **Emulsification** combines normally incompatible liquids like oil and water with the help of emulsifiers such as lecithin, commonly found in egg yolk. Together, these techniques redefine modern culinary practices.

LITREATURE REVIEW

Kurti, N., and This, H. [1] Introduced the concept of molecular and physical gastronomy, focusing on the scientific understanding of physical and chemical transformations during cooking. Their work laid the foundation for molecular gastronomy as both a scientific discipline and a modern culinary practice.

This, H. [2] Examined the principles of molecular gastronomy and emphasized its role in enhancing sensory perception, creativity, and innovation in modern cuisine. The study highlighted how scientific techniques influence consumer curiosity and acceptance.

Vega, C., and Ubbink, J. [3] Explored the application of molecular gastronomy techniques in contemporary kitchens and analysed consumer responses to novel textures, flavours, and presentations, particularly among younger demographics.

Spence, C. [4] Investigated multisensory dining experiences and demonstrated that visual presentation, texture, and sound significantly influence consumer preferences toward experimental cuisines such as molecular gastronomy.

Rozin, P. [5] Studied cultural influences on food preferences and concluded that traditional foods evoke emotional comfort and familiarity, explaining sustained consumer preference for traditional Indian desserts.

Datta, A.K. [6] Analyzed the cultural and social significance of Indian sweets, highlighting their association with festivals, rituals, and heritage, which strengthens long-term consumer acceptance.

Kittler, P.G., Sucher, K.P., and Nelms, M. [7] Discussed the role of tradition and nostalgia in shaping food choices, emphasizing why consumers often prefer familiar desserts over innovative culinary experiments.

Rao, S., and Batra, R. [8] Examined consumer attitudes toward traditional versus modern foods in India and found that authenticity, taste familiarity, and value for money strongly favor Indian desserts.

Harrington, R.J. [9] Evaluated novelty-driven food consumption and noted that while molecular gastronomy attracts initial interest, repeat consumption depends on taste satisfaction and cultural compatibility.

Singh, A., and Srivastava, S. [10] Studied awareness and perception of molecular gastronomy among Indian consumers, revealing limited familiarity but growing interest in urban and fine-dining contexts.

Pine, B.J., and Gilmore, J.H. [11] Proposed the concept of the experience economy and demonstrated how experiential dining enhances customer engagement, supporting the appeal of molecular gastronomy.

Sharma, P., Mehta, R., and Kapoor, S. [12] Compared traditional Indian desserts with modern culinary innovations and concluded that despite rising interest in molecular gastronomy, Indian desserts remain dominant due to cultural attachment and widespread acceptance.

METHODOLOGY

3.1 INTRODUCTION

Research design facilitates the smooth sailing of the various research operations. It is imperative than efficient and appropriate design must be prepared survey based on the objective of this study gives an in sight the relationship between the variables under the study.

The method of data collection was using questionnaire. In this context, a qualitative method was adopted for data analysis. A questionnaire was constructed and the data was analysed using this questionnaire.

The responses were collected based on various rating similar to the linker type scale this type of scale is considered more reliable because the respondents answer each statement included, in the instrument for the options provided.

3.2 RESEARCH METHODOLOGY

While making the project report two types of sources were used.

- Primary data
- Secondary data

Primary data

Primary data is the information that is collected specifically for the purpose of research project. An advantage of primary data is that it is specifically tailored to research needs.

Secondary data

Secondary data is information that has been collected for a purpose other than your current research project but has some relevance and affiliate for your research. The data for this research collected through different publication like magazines, books, journals and other publications. Internet is also being used to collect the required information.

3.3 Sample survey

1‘Molecular Gastronomy’, is the term familiar to you

Table 3.3.1

Options	Points	Percentage (%)
Yes	10	100
No	0	0

Interpretation:

Out of 10 respondents all of them are familiar with molecular gastronomy.

2 Are you a food conscious?

Table 3.3.2

Options	Points	Percentage (%)
Yes	7	70
No	3	30

Interpretation:

Out of 10 respondents 7 of them are food conscious and 3 of them are not

3 Have you consumed desserts made with molecular gastronomy?

Table 3.3.3

Options	Points	Percentage (%)
Yes	6	60
No	4	40

Interpretation:

Out of 10 respondents 6 have tried dessert made using molecular gastronomy and 4 of them have not.

4 What is your first preference with respect to desserts?

Table 3.3.4

Options	Points	Percentage (%)
Taste	5	50
Colour	1	10
Texture	2	20
Eye appeal	2	20

Interpretation:

Out of 10 respondent 5of them selected taste, 1 of them selected colour, 2 of them selected texture and 2 of them selected eye appeal

5 Do you think, use of science to perfect the production of desserts would be a good idea?

Table 3.3.5

Options	Points	Percentage (%)
Yes	6	60
No	4	40

Interpretation:

Out of 10 respondents 6 of them think use of science to perfect yhe production of dessert is an good idea and 4 of them do not agree with that.

6 Do you think molecular gastronomy is overall a good concept?

Table 3.3.6

Options	Points	Percentage (%)
Yes	8	80
No	2	20

Interpretation:

Out of 10 respondents 8 think molecular gastronomy is overall good concept an 2 of them do not think so.

7 Over all presentation is?

Table 3.3.7

Options	Points	Percentage (%)
Creative	9	90
Artistic	1	10
Not effective	0	0

Interpretation:

Out of 10 respondents 9 of them think presentation is creative an 1 of think that it is artistic.

8 Have you noticed any change between the traditionally made desserts and desserts made using molecular gastronomy?

Table 3.3.8

Options	Points	Percentage (%)
Yes	10	100
No	0	0

Interpretation:

All of the respondents noticed the change between traditionally cooked desserts and dessert cooked using molecular gastronomy.

9 Which dessert do you like?

Table 3.3.9

Options	Points	Percentage (%)
D1	7	70
D2	1	10
M1	1	10
M2	1	10

Interpretation:

Out of 10 respondents 7 of them like D1 an 1 of them like D2 and one of them like M1 and one of them like M2

3.5 RESULT AND DISCUSSION

The interpretation of the data analysis was discussed in this chapter and the findings were organized into tables along with pie charts and graphical representations to display the data collected.

Molecular Indian dessert sample:

Taste:

The Molecular Indian dessert samples receive a sufficiently high rating as compared classical Indian dessert samples for the taste rating of the drink. This helps to improve the taste of the molecular Indian desserts in comparison to Classical Indian desserts.

Flavour:

In the attribute of flavour, it was observed that the molecular dessert samples M1 and -M2 were not as influential as that of the classical desserts samples D1 and D2 and need to improve this attribute as it is a significant aspect of the dessert

Texture:

In this case of the texture the molecular desserts were not superior than classical desserts. Thus improvement is required in this section

Presentation:

In this case of ratings of eye appeal of the molecular dessert samples were less than classical dessert, this helps to identify the area of improvements in future.

Classical Indian dessert samples;

Taste:

Both the dessert samples M2 and M1 prepared for the research study for the Classical dessert making method were of superior taste and the respondents clearly identified the same as observed from ratings collected from the research questionnaire.

Flavour:

The rating projected in the flavour aspect of the classical dessert samples dominated that of molecular dessert samples as flavours sensed by the respondents were more evident and distinct.

Texture:

In these molecular desserts are not that dominant than molecular dessert.

Eye appeal:

Performance of the classical dessert samples were exceptional as compared to that of molecular dessert samples as the classical dessert samples were more eye appealing as they had a colour combination and alternate layers of flavours and ingredient these aspects made the classical dessert sample different from molecular dessert sample.

CONCLUSION

This study provides a comprehensive comparison of consumer preferences between molecular gastronomy desserts and traditional Indian desserts. The findings indicate that both dessert-making approaches possess distinct strengths: molecular gastronomy excels in innovation, creativity, and novelty, appealing especially to younger, adventurous consumers who value unique textures, presentation, and sensory experiences. Traditional Indian desserts, on the other hand, remain dominant in overall consumer preference due to their cultural significance, familiar Flavors, emotional attachment, and visually appealing presentation. The data analysis revealed that molecular desserts received relatively higher ratings for taste but lagged in flavour intensity, texture, and eye appeal compared to classical desserts, highlighting areas for improvement. Conversely, classical desserts consistently outperformed molecular desserts across flavor, texture, and presentation, reinforcing the enduring appeal of tradition and authenticity. The study emphasizes the potential for integrating molecular gastronomy techniques into classical Indian desserts to innovate flavor combinations and presentation, thereby enhancing the culinary experience while retaining cultural relevance. Overall, this research underscores the importance of balancing tradition with modern culinary innovation, offering valuable insights for chefs, restaurateurs, and culinary marketers seeking to cater to evolving consumer preferences in contemporary gastronomy.

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