

DEMERITS OF MOLECULAR GASTRONOMY AND IT'S ADAPTABILITY IN INDIAN CULINARY INDUSTRY

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Abstract

Molecular Gastronomy is an emerging field in the vast depths of the culinary field. We have been known about it's raging momentum and have been in awe of the amalgamation of science and food. Everything in the universe has it's share of pros and cons. We are much aware of the pros of Molecular Gastronomy but little are we aware of the cons of Molecular Gastronomy and it's rate of adaptability in the Indian Culinary Industry. This research highlights the Demerits of Molecular Gastronomy and it's Adaptability in the Indian Culinary Industry.

Keywords : Molecular Gastronomy, Indian Culinary Industry, Demerits of Molecular Gastronomy

Introduction

Molecular Gastronomy is an amalgamation of Food Science and Culinary Arts which involves deep study of physical, chemical and biological components of food and to trigger it's transformation using these elements to form something innovative and appealing. It is a revolution in the Culinary World and is a part of the Modern style of cooking.

It started off as a study termed as 'Molecular and Physical Gastronomy' by Hungarian Physicist Nicholas Kurti and French Physical Chemist Hervé This. They later started having a set of workshops in 1992 in Italy where professional chefs and scientists discussed about 'Science & Gastronomy'. Molecular Gastronomy which earlier was limited to workshops have now been inculcated in modern style of cooking and chefs like Heston Blumenthal, Grant Achatz and Wylie Dufresne are ambassadors of this culinary revolution.

The reason why Molecular Gastronomy got it's momentum is because of it's creativity in presenting the same old traditional dishes in a new way by scientific methods. But in this world where one is stepping back in time towards ethnicity by adopting the age old traditional culinary methods and organic food, Molecular Gastronomy is an antithesis to it where no food dishes could be made without the intervention of a chemical element which is mostly formed by chemical processes.

Molecular Gastronomy is spreading it's branches even in India. Indians are known for their keenness to stick to traditional dishes and we Indians have difficulty in welcoming any change and when it comes to food, our taste and perception is deeply rooted to it's originality. Value for money, limitation of skilled chefs practising Molecular Gastronomy and portion size are some of the demerits. There are more such demerits to this subject which will be discussed briefly in this research paper.

Objectives

- To study the demerits of Molecular Gastronomy.
- To study it's adaptability in the Indian Culinary Industry.

Review of Literature

Molecular Gastronomy is one of the latest culinary trends which is booming in the modern culinary world. It is the study of the chemical and physiological reasons behind the transformation of ingredients. Along with this, the artistic, social and technical components of culinary are also explored.

Molecular Gastronomy has various techniques used such as the following:

1. Spherification

It is a process of converting liquid into spheres of liquid which have a thin outer membrane. Additives used in this process are Sodium Alginate and Calcium Salts.

2. Gelification

It is a process of turning liquid into jelly, it can be soft or hard type of jelly. Examples are : Mango Caviar, Instant Ice-creams, Chocolate Spaghetti. Additives used are Agar Agar and Gelatin.

3. Thickening

It is a process of thickening the consistency of a liquid. Additive used is Guar Gum.

4. Emulsification

It is a process of creating light foam which is airy in texture from a liquid. Additive used is Soy Lecithin.

5. Effervescence

It is a process of fizz creation and formulation of gas in liquid which are released when opened. Additive used is Popping Sugar. It is sugar bits containing carbon dioxide.

6. Transformation

It is a process of converting fats or melted chocolate into powder form. Liquid is evaporated from the product and converted into dry form.

Additive used is Maltodextrin

Risks of the Additives used in Molecular Gastronomy

- A study by European Food Safety Authority states that - Alginates are reported to be mildly irritant to the eyes. They are considered as potential sensitizers to the skin and the respiratory tract.
- Excessive amount of Gelatin intake can cause digestive upset, constipation, bloating and lack of appetite.
- High amounts of Guar Gum can cause intestinal obstruction and sometimes it is even fatal. The amount used in processed foods does not usually cause side effects, but can sometimes cause mild digestive symptoms.
- The possible danger of Soy Lecithin is because of its extraction process wherein Hexane is used. It is a solvent used for glues, varnishes and as a cleaning agent in the printing industry. There may be Hexane residue leftover in Soy Lecithin which is not regulated by the FDA. It is obtained from Genetically Modified Soybeans. Soy Lecithin contains isoflavones, which can have estrogenic-effects when ingested.
- Any sugar containing item used in excessive amount can cause hyperglycemia, heart disease or kidney disease. Popping sugar being sugar with carbon dioxide can be related to aerated drinks.
- Maltodextrin is not favourable for diabetic patients. According to a 2012 study published in PLoS ONE, maltodextrin can restrain the growth of probiotics in the digestive system which are important for immune system. The same study showed that maltodextrin can lead to the growth of E. coli bacteria which can cause auto immune disorders like Crohn's disease (a chronic inflammatory bowel disease that affects the lining of the digestive tract)

Demerits of Molecular Gastronomy**1. Adaptability by Indian Guests**

- Limited adaptability.
- Preference to all time favourite food.
- Not always open to experimenting new things.
- Taste difference.

2. Expensive

- Expensive equipments used.
- Liquid Nitrogen equipment set up & its accessories are not economical to invest.
- Ingredient and chemical cost is high.

3. Portion size

- Limited portion size since it is expensive and high in cost.
- Some recipes are modified to change their texture and consistency so it becomes practically difficult to give big portions especially for main course speciality.

4. Value for Money

- Guests find its value for money less as the concept is expensive and due to limited portion size, they may be disappointed.

5. Health Defects

- Since there is use of chemicals in this style of cooking, some medical studies state that it is not recommended for consumption on regular basis.
- Some medical studies state prohibition of the consumption of these dishes for pregnant women, diabetic people and people having blood pressure problem.

6. Uncommon in Indian Culinary

- Indian cooking is not very adaptable to changing its form, texture, consistency and presentation as Molecular Gastronomy has use of chemicals.
- Some dishes need tempering, reduction or long cooking and it would be difficult to change their form as per molecular style.
- Limited scope to meet high expectations.

7. Limitation of all Indian dishes under Molecular Gastronomy

- Replication of Indian style of cooking (tandoor cooking, dum cooking) is difficult as per molecular style of cooking.
- Side effects of chemicals used in Molecular Gastronomy with the Indian spices.
- Possibility of hampering the taste of Indian spices.

8. More Capital

- Capital expenditure, finance, monetary aspect and budget need to be considered while investing in this style of cooking.
- High investment.
- Flow of funds should be high as there are fixed costs (machinery, liquid nitrogen cylinders, refills, accessories [masks, gloves], equipments).

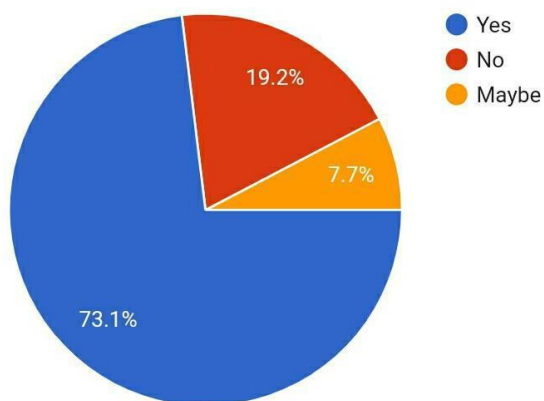
9. Limitation in Employees/Skilled Chefs

- Molecular Gastronomy involves use of skills and techniques which are cost inclusive and does need training, practice and upgradation as per current trends so that guest expectations can be met.
- Not all employees are skilled to adapt to this style of cooking.
- Cross training, departmental training needs to be carried out to deliver best possible standards.

Research Methodology

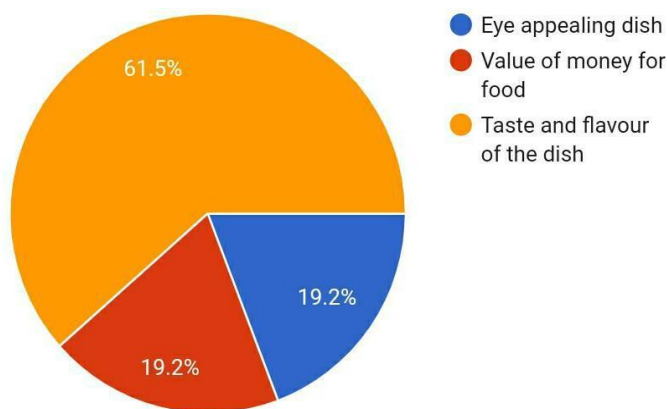
- This research is descriptive in nature conducted with the help of primary and secondary data.
- A survey was conducted through a questionnaire which was sent to general public of age group (16yrs – 60yrs). The data obtained was analysed with the percentage tool.
- Some of the professional, celebrity and Michelin starred chefs were interviewed regarding the subject.
- The secondary data was collected from various reports, studies and books of Molecular Gastronomy.

Were you aware of the culinary trend – ‘Molecular Gastronomy’?



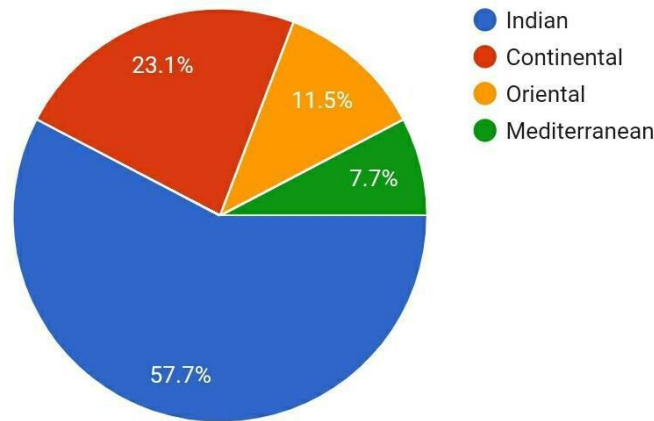
Majority of the respondents were aware of the culinary trend – ‘Molecular Gastronomy’. When asked about the source of information, it was mainly from social media.

What do you prefer the most?

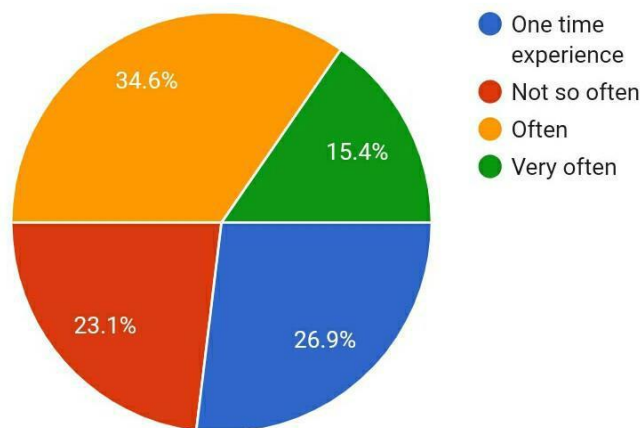


Majority of respondents mostly prefer the taste and flavour of the dish. Moderate response is for eye appealing dish and value of money for food.

In a restaurant, what type of cuisine do you prefer?

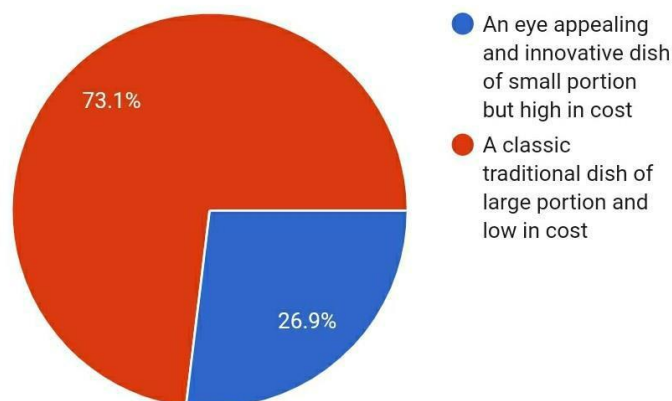


Maximum respondents prefer restaurants specialising in Indian cuisine. Moderate response is for Continental and Oriental restaurants. Least response is for restaurants specialising in Mediterranean cuisine. In your preferred choice of cuisine, how often do you try ‘something new and extravagant’?



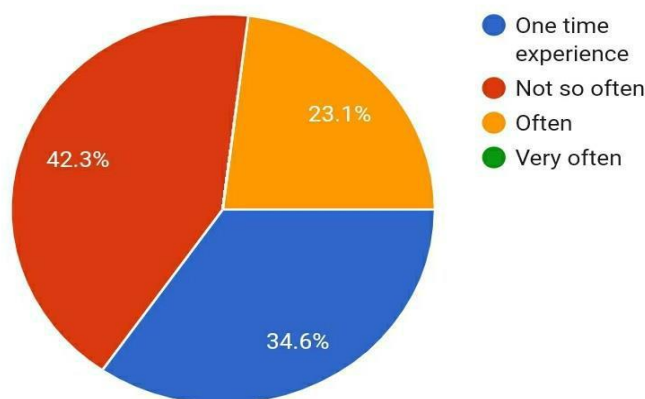
Most respondents often try ‘something new and extravagant’ in their preferred choice of cuisine. Moderate response would have a one time experience for trying out something new and extravagant.

Which of these two would you prefer?



Majority of the respondents prefer a classic traditional dish of large portion and of low cost. Least response is for an eye appealing and innovative dish of small portion and of high cost.

How often would you visit a restaurant specialising in Molecular Gastronomy?



Majority of respondents would not often visit a restaurant specialising in Molecular Gastronomy. Moderate number of respondents would visit such a restaurant for a one time experience. Least number of respondents would often visit such restaurants.

Interview Method

Questions

- 1) What do you think about the adaptability of Molecular Gastronomy in the Indian market?
- 2) What do you think about the portion size and value for money of this culinary trend?
- 3) Can Molecular Gastronomy cause any health issues?
- 4) Do you think Molecular Gastronomy could sustain in the Indian Culinary Industry?
- 5) Is there any way to popularize Molecular Gastronomy in India? Is making it cheaper one of the many ways?
- 6) What is your say on young chefs wanting to make a career in Molecular Gastronomy?

Chef Ashvini Kumar - Executive Chef, Four Points by Sheraton, Navi Mumbai

“Molecular Gastronomy is least adaptable in India due to it’s high cost and lack of skilled chefs. The portion size is limited as it is not feasible to give large portion as a result the value of money is less taking from an Indian guest’s perspective. Molecular Gastronomy can cause certain health issues as the use of chemicals is more. The sustainability of Molecular Gastronomy in India is difficult and one way to popularize it can be to make it more cheaper and to find suitable substitute of the chemicals used. If these can be achieved then only young chefs should take up Molecular Gastronomy in India.”

Input of Celebrity Chefs about the Adaptability of Molecular Gastronomy in India

Chef Vineet Bhatia, Michelin Starred Chef

“Molecular Gastronomy is very passé and done everywhere but sadly not much in India. Most people practising Molecular Gastronomy don’t even understand the concept and use it as a gimmick.”

Chef Atul Kochhar, Michelin Starred Chef

“I never saw any upside for Indian food with Molecular Gastronomy which is a gimmick. It was fad and now it is gone. We can’t change the perfection but can get inspired by it,”

Chef Vicky Ratnani, Food Connoisseur & Celebrity Chef

“Molecular Gastronomy is something which I wouldn’t encourage in India. There is no meaning to add chemicals to food to make it superior. I prefer all natural ingredients and I bring variation in my method of cooking to make it more efficient. Molecular Gastronomy cannot sustain in the Indian market.”

Conclusion

Molecular Gastronomy has certain demerits and limitations which are not very favourable to handle in our country. These demerits have to be worked on for Molecular Gastronomy to sustain in India. The adaptability of Molecular Gastronomy in India is difficult due to the demerits and the complexity of Indian cuisine. It may be recommended to give it a try as an innovative aspect but its durability and long run success seems difficult.

Limitations of the Study

There were only a handful of people having an in-depth knowledge of the subject and the number of chefs having an expertise in this field were few.

Recommendations

- Proper research and food trials should be conducted for Molecular Gastronomy for Indian and other cuisines.
- Efficient training program for chefs wanting to have an expertise in Molecular Gastronomy should be conducted.
- Substitute of the chemicals should be found which are less harmful to health and their availability should be increased.
- If the food cost and equipment cost can be decreased, then portion size of the dishes can be increased and Indians guests could get optimum value for money.

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