

# Molecular Gastronomy for Indian Cuisine

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## Abstract

Molecular Gastronomy is a perfect blend of techniques and infusion of Science with food to make it more interesting. In the modern era of culinary spectacles, this technique has gained popularity not only because of the wow factor but also for giving a new dimension to the art of presenting food. Although, this science was confined to the western world, it has gained ground in Asian cuisines. Predominantly, in the Indian cuisine.

This study aims at studying the various facets of Molecular Gastronomy when implemented in Indian cuisine.

The findings of his research suggests areas like "Food garnish" and "plate presentation" will be maximum effective. The maximum effects of molecular gastronomy is on visual impact and appeal of the food served. The techniques of foams and sous vied (slow cooking) would be the most preferred, followed by use of pearls / spheres. The major challenge faced would be of availability of chefs with molecular skills.

**Keywords:** Molecular Gastronomy, Indian Cuisine

## INTRODUCTION

Molecular Gastronomy is a perfect blend of techniques and infusion of Science with food to make it more interesting. In the modern era of culinary spectacles, this technique has gained popularity not only because of the wow factor but also for giving a new dimension to the art of presenting food. Although, this science was confined to the western world, it has gained ground in Asian cuisines. Predominantly, in the Indian cuisine. The regional and cultural diversity of Indian has attracted the professionals to look at Indian cuisine with a different perspective. Thereby giving it a facelift by implementing the modern trends to enhance the meal experience. Molecular Gastronomy is no exception to this fact.

As any other fields, molecular gastronomy also attracted much criticism from food writers and chefs around the world. Many established chefs did not accept molecular gastronomy as scientific gastronomic phenomena but labelled it as temporary style of cuisine. There are many techniques used in molecular gastronomy such as foam, smoke, changing texture of food, spherification, emulsification, flavor pairing, funny etc.

Professionals are of the opinion that the technique might damages the Indian food flavors as they are very delicate and yet complex. Molecular gastronomy as a chemical is absolutely safe. It's been tried and tasted too. But right training, talent and usage is very important otherwise it will adverse on health. Some of the popular restaurant in India who served molecular food are Farzi café, Pink poppadum and Masala library etc.

Molecular food technique is completely different from fusion food which many people often consider as same. This study aims at studying the various facets of Molecular Gastronomy when implemented in Indian cuisine.

This research particularly is done for Indian market and understands the challenges like wise. India, though developed with other sectors still requires development with the trends in fields like molecular gastronomy. Lack of training schools with such culinary requirements give the rise to challenge of availability of chefs with molecular skills.

## LITERATURE REVIEW

- John Cousins, Kevin O’Gorman, and Marc Stierand, (2010) in “International Journal of Contemporary Hospitality Management”, Vol. 22 Issue: 3, pp.399-415, ISSN: 0959-6119 wrote paper on “Molecular gastronomy: cuisine innovation or modern day al-

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chemistry". The paper explore the phenomenon of molecular gastronomy by conducting empirical research focusing on renowned chefs. It summarized past culinary innovations, focuses on the origins and evolution of molecular gastronomy.

- Mathew carter and Professor Harmon in world press website publish paper, 2011, On "Molecular Gastronomy: Food of the Future? "The paper explore information's about the molecular gastronomy food, the chef's information, history of them. The paper also have zest of the well know chefs interviews and opinion on molecular food applications. Many food science chefs are introduced from all over the world and they all have the same intention; to change the world of 'normal' food for the pleasure of people.
- César Vega, Job Ubbink in magazine "Trends in Food Science & Technology", Volume 19, Issue 7, July 2008, Pages 372–382 wrote an article on "Molecular gastronomy: a food fad or science supporting innovative cuisine?". The article talked about science-based cooking, where the first relates to the scientific understanding of the cooking and eating processes and the latter refers to the application of the principles and tools from science for the development of new dishes, particularly in the context of haute cuisine. They also discussed about chefs dealing with the available systematic knowledge on food and cooking, and how molecular gastronomy can facilitate the cumbersome, but much needed discussions among food scientists and chefs. Finally, we discuss the implications of molecular gastronomy for society.
- Erik van der, David Julian McClements and Job Ubbink in "food biophysics magazine" June 2008, Volume 3, Issue 2, pp. 246–254, publish paper on 'Molecular Gastronomy: A Food Fad or an Interface for Science-based Cooking?' The paper consist of brief history of the field of molecular gastronomy, the definition of the term itself, and the current controversy surrounding this term. They has also highlight the distinction between molecular gastronomy and science-based cooking, molecular gastronomy forms an ideal base to educate the general public about the basic principles of science and cooking.
- Herve' This in British Journal of Nutrition (2005), 93, Suppl. 1, S139–S146, discussed about 2 issues "Modelling dishes and exploring culinary precisions". Mr. This had explored the scientific strategy of molecular gastronomy includes modelling 'culinary definitions' and experimental explorations of 'culinary precisions'. A formalism that describes complex dispersed systems leads to a physical classification of classical sauces, as well as to the invention of an infinite number of new dishes. He also explained some points related to molecular gastronomy such as disperse systems, food formalism for physical transformations, meaning of cooking and precision and scientific strategy.
- John Cousins, Kevin O'Gorman, Marc Stierand in International Journal of Contemporary Hospitality Management, publish paper on phenomenon of molecular gastronomy, ISSN: 0959-6119, Vol. 22 Issue: 3, pp.399-415, doi: 10.1108/09596111011035972. The paper aims to explore the phenomenon of molecular gastronomy by conducting empirical research focusing on renowned chefs. Paper focuses on the origins and evolution of molecular gastronomy, followed by 18 phenomenological interviews with a snowball sample of world class chefs from across Europe.
- Maria Domene in hipatia press publish paper on "EL BULLI - Contemporary Intersections between Food, Science, Art and Late Capitalism", ISSN 2014-8892, vol-1, no.-1, page no. 100-126. The paper talk about incorporation of science and technology into cuisine by el bulli restaurant. The paper describe some of chef Adria's dishes and examine the way in which relate to the artistic field. Further Ms. Maria talked about the culinary journey of Chef Ferran Adria's, and his work related to spherification process, cooking with liquid nitrogen, menus created in the kitchen etc.
- Huiyong Wang & Jianming Wang in journal of culinary science and technology volume 14-2016, issue 3 Pages 191-197 wrote a research paper on topic "an analysis on the Influence of the Molecular Gastronomy on the Chinese Cooking Development". The paper summarize the concept and characteristics of molecular gastronomy and analyze its links with the traditional Chinese cooking and the development of China's market prospect. At the same time, it also has analyze on the impact of molecular gastronomy on Chinese cooking from cooking edu-

cation, standard of Chinese food, and the scientific concept of Chinese cooking.

- Jaime Friel Blanck in journal of agriculture and food information, volume-8 2008 issue-3, wrote a paper “Overview of a Controversial Food Science Discipline “Pages 77-85. The paper has included discussion on origins of the food science discipline, molecular gastronomy. Paper talk about gastronomists explore the physical changes that occur as food is prepared for human consumption and attempt to identify optimum methods of creating a dish for pleasurable flavor and texture. Paper also explain about the word “molecular gastronomy” is often misused in the media to refer to chefs who apply techniques developed by scientists to their own style of cooking.
- Tom Thomas and Sumit Pant in online journal “Advances in Economics and Business Management”, ISSN: 2394-1553; Volume 2, Number 6; April-June, 2015 pp. 556-559. In the paper the writers try to find the scope of this modern cuisine in world city like Delhi NCR, and also put forwards issues and challenges which can be a deterrent in acceptance of this type of cooking. The paper says about food changes in history of civilization, changes in the use of ingredients, techniques and flavors generated. The paper also includes all the development & revaluation happened over the period in culinary world.

## OBJECTIVES OF THE STUDY

- To explore the implementation of molecular gastronomy in Indian cuisine.
- To identify the challenges of implementing of Molecular Gastronomy in Indian cuisine.

## LIMITATIONS OF THE STUDY

- The study is conducted in the current scenario and the opinions, perception and expectations of the respondents may differ with time.
- The study does not differentiate respondents on basis of their demographic factors which may have an influence of their perception thereby identifying scope for further research.

## RESEARCH METHODOLOGY

The data required for the research was collected using the following techniques:

- **Personal Interviews:** The researcher conducted personal interviews with owners, managers and guests of popular restaurants in Pune city to get an insight on the problem under study.
- **Questionnaire:** A questionnaire bearing straight forward and relevant questions was drafted and handed over to the sample to obtain their responses.

## DISCUSSIONS, FINDINGS & CONCLUSIONS

### Discussions

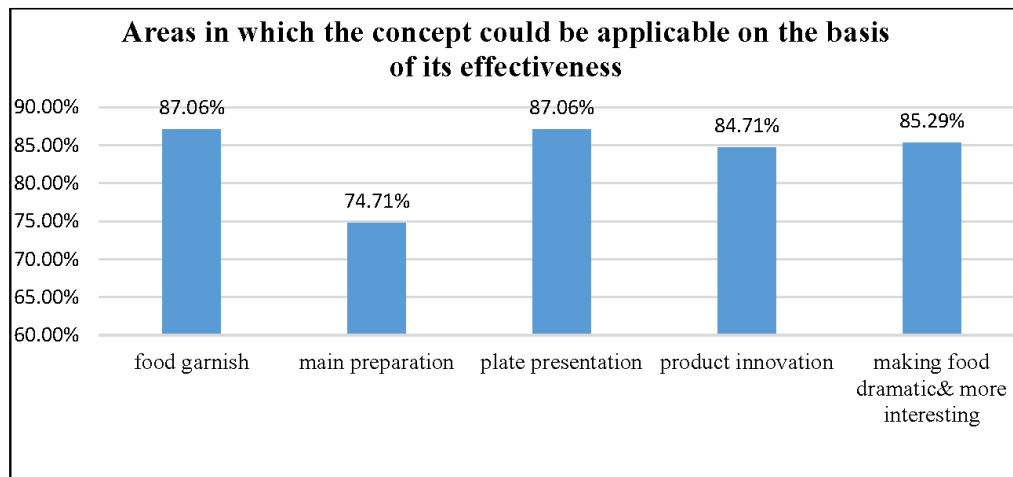
#### Molecular Gastronomy in Indian Cuisine

Molecular gastronomy has been very popular in the western cuisine and a lot of international chefs have conducted extensive research in this area and has successfully implemented it in the modern global cuisines. However, Indian cuisine is a slight exception. Indian cuisine is characterized with its cultural and regional diversity and a vast variety of local cuisines co-exist with the established Indian cuisine that the world is aware of. This nature of Indian cuisine has made it a lesser priority for application of the concepts of molecular gastronomy. Moreover, lack of globalization of Indian cuisine has attracted very few chefs to conduct research on application of molecular gastronomy on this cuisine.

#### Implementation of the Concept in Indian Cuisine

Indian cuisine consists of lot of strong flavor and use of complex ingredients, therefore implementation of molecular gastronomy has been and will be challenging. However, restaurants like Masala Library, Indian Accent etc. accepted this challenge and started with the journey of molecular gastronomy in Indian cuisine. The above mentioned restaurant are located in metropolitan cities like Delhi, Bengaluru and Mumbai. This particular research emphasizes to introduce the concept of molecular gastronomy in the city of Pune; which is also the IT hub. The implementation challenges that can be faced for running the restaurant with such premium quality that is being offered.

### Findings

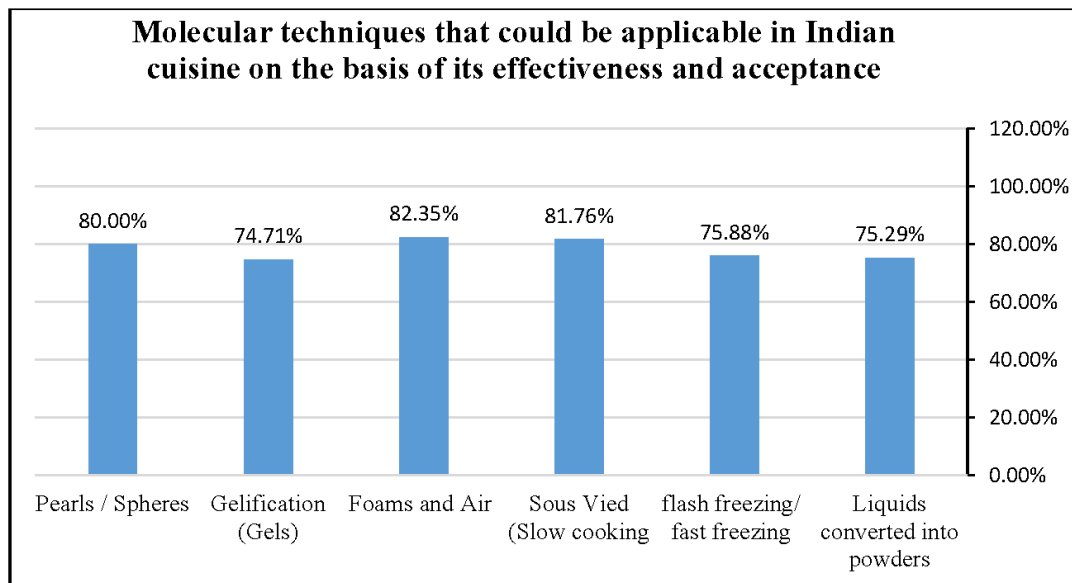


The above figure overviews effectiveness of molecular gastronomy in different aspects of food. It is revealed that

molecular gastronomy can be equally effective in all the aspects of food like food garnish, presentation, innovation.

Food garnish and plate presentation will be maximum effective, whereas the dramatic effect obtained in food and innovation of product by use molecular gastronomy will be next.

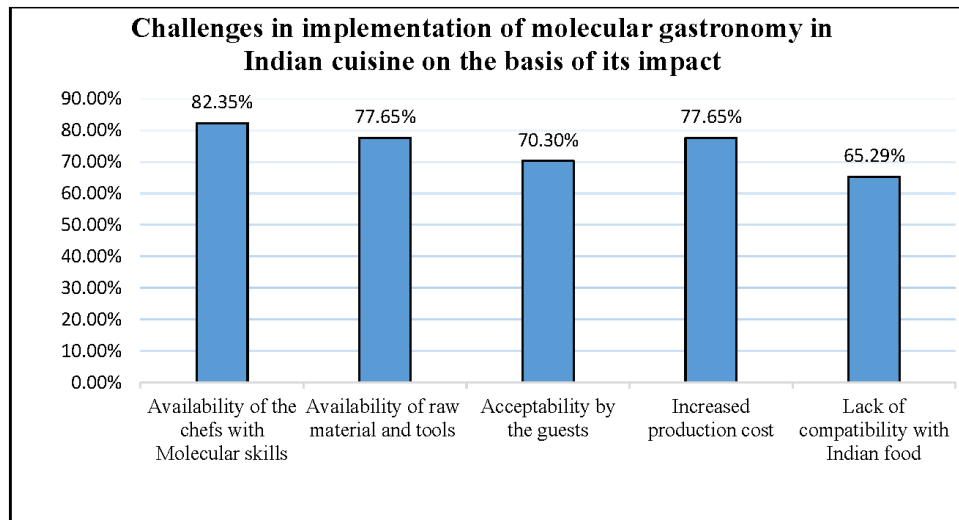
Finally, the main preparation proves that the maximum effects of molecular gastronomy is on visual impact and appeal of the food served.



The above figure shows the most preferred and suitable technique that can be used in Indian cuisine.

The findings reveals that the techniques of foams and sous vied (slow cooking) would be the most preferred, followed by use of pearls / spheres.

The other techniques of jellification, liquids converted into powders and flash freezing would be slightly less preferred as compare to others.



The above figure emphasizes on various challenges that can obstruct the path of success of entrepreneurs.

Findings reveal that the major challenge faced would be of availability of chefs with molecular skills. As discussed earlier, molecular gastronomy is the fusion of Science and food, hence is required to be understood and practiced.

The second major challenge being availability of raw products and tools & increase in production cost. So far, from the research it is quite obvious that molecular gastronomy comes with huge costs.

Increase in production cost is evident due to such issues like equipment's, products. It also includes the skilled labor cost and training cost.

Last but not the least, the challenge of acceptability of food by the guests and lack of compatibility with Indian food. At last, compatibility – the word itself is self-explanatory. Indian food is very delicate and full of flavors. Introduction of molecular gastronomy with Indian food still can be considered as an experiment as Indian cuisine in whole is diversified. It definitely is the challenge.

## CONCLUSIONS

The findings of the research can be concluded as under:

- Food garnish and plate presentation will be maximum effective, whereas the dramatic effect obtained in food and innovation of product by use molecular gastronomy will be next.
- The maximum effects of molecular gastronomy is on visual impact and appeal of the food served.

- The techniques of foams and sous vied (slow cooking) would be the most preferred, followed by use of pearls/ spheres.
- The major challenge faced would be of availability of chefs with molecular skills.
- The second major challenge being availability of raw products and tools & increase in production cost.

## SUGGESTIONS & RECOMMENDATIONS

Based on the responses received by the customers on molecular gastronomy in Indian cuisine the following suggestions & recommendations can be made:

- Molecular gastronomy concept is very much known in India. It can be implemented in Indian cuisine.
- It requires study to understand the combinations, proportions of hydrochlorides to be mixed with foods and most important health and safety of patrons. It can be obtained only through study and research, practice. Suppliers should tie up with international trade associations to make sure raw material is easily available in all cities for molecular gastronomy.

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