

43. Molecular gastronomy

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Introduction. Molecular gastronomy is the new direction of gastronomy mostly initiated by idea of implementation of science in cooking. Many things associated with this term are not quite clear and many have a wrong idea. This direction of gastronomy seeks innovation and improvement of the existing situation, a fundamental goal of improving ways of preparing meals, so that they have such taste as it should be in the optimal case, every time. The idea of a practical molecular gastronomy in restaurants and forming a sort of combination of traditional and modern, artistic and scientific approach to cooking is widespread throughout the world. In the today's world the obesity is one of the biggest problems of modern man, a result of sedentary lifestyles and unbalanced diets imposed by lifestyle. Standard restaurants' offer is based on the portions that exceed nutritional requirements and the entry of such foods further undermine the notion of a balanced diet. For these reasons there is a need for rationalization and regular moderate intake of what is needed. Rationalization of nutrition is one of the main features of the new attitudes adopted by molecular gastronomy, as well as the use of food as a whole.

Application of additives and innovation in the preparation of food molecular gastronomy. From new ways of transformation of food used in molecular gastronomy in everyday practice can be applied:

- spherification in a bath of sodium alginate or calcium chloride and water
- the use of liquid nitrogen

a) spherification in a bath of sodium alginate and calcium chloride and water – an innovative way of transforming food without the presence of heat. This is a technique used for making, among other things, false and reverse olive caviar. There are many variations of using this process, but the last two uses are the most often. During spherification the food is transformed in the way of placing them in a thin, slowly solvable membrane of sodium alginate and calcium chloride. The process of spherification in a big way introduces Spanish chef Ferran Adrià and he was one of his trademarks.

For complete spherification it is required special equipment, and it consists of the following components:

- sodium-alginate
- salt, calcium chloride (calcium without food can't be spherificated)
- spoons of different shapes and sizes

- syringe without a needle (for the fake caviar)
- water bath for stopping the process

b) Use of liquid nitrogen is a relatively new technique in gastronomy. The temperature of liquid nitrogen is -196°C and as such has long been used mainly for various industrial purposes. Its use as a cooking technique reduces the production of ice cream and sorbet. It is a great plus in making ice cream with liquid nitrogen so that the crystals are very small due to the short time of freezing and thus ice cream made in this way has a very creamy and smooth texture.

New machinery, equipment and tools at the present time offer chefs the opportunity to achieve what was always possible with the food, but the available equipment didn't allow, in other words the borders of realisable are moving. These new capabilities enable the use of science as well as mutual cooperation between chefs and scientists. New equipment can be divided into those originally intended for laboratories, which slowly begins to apply in catering kitchens and the one whose purpose is primarily and exclusively planned for the professional catering kitchen, some of which are designed as equipment intended for household.

Additives are substances of accurately known chemical composition that can't be consumed as food or as a typical ingredient of food, regardless of nutritional value, they are added to food to enhance their technological and sensory properties. Additives are added to food in: the technological process of production, during the preparation, processing, packaging design, transportation and storage.

Characteristics of the restaurant that apply molecular gastronomy. There are many elements which different restaurants and standard restaurants apply molecular gastronomy. Most would expect from such restaurants chefs in lab coats, and kitchen as a laboratory. But it is far from the truth, although there is a big and obvious difference between the standard and the restaurant of molecular gastronomy. In essence, they are more restaurants, and less laboratories. The differences are most evident in the approach and in the kitchen equipment as well as her appearance.

Conclusions. Molecular gastronomy is a new gourmet direction connecting the catering kitchen and laboratory, and thus creates new flavors, forms of unprecedented. It can be, of course, understood as a process of application of science in everyday cooking. Modern molecular gastronomy shows the tendency toward further progress and popularization, but a noticeable impact on the so-called "Molecular mixology", and molecular approach to the preparation of cocktails, where just as in the case of food, it is changing the physical state of food and it is searching the limits of each food. The future is unpredictable, and in which direction to go to molecular gastronomy remains to be seen.

References

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