In recent years, more and more globalized world favors organic food. Therefore, the cooks have to puzzle over the new trends to make gourmet dish looks impressive and appetizing. New trends are making progress today, thanks to the development of technologies, although traditional cooking is still very well established. Molecular gastronomy or molecular cuisine is the science of cooking but it is commonly used to describe a new style of cuisine in which chefs explore new culinary possibilities in the kitchen and create various versions of foods by embracing sensory and food science, borrowing tools from the science lab and ingredients from the food industry. For example, chefs learned how to create foams or powders that taste like foie gras, peanut butter or marshmallows by using molecular techniques and equipment. On this basis there is a new breed of chef that make meals in the most unexpected ways. Imagine spaghetti made out of tomato soup! Fruit-juice caviar! Floating clouds of creamy flavor that taste like preserved lemon! Cooking has gone from the everyday drudgery of boiling, straining, chopping, and roasting to spherification, gelification, and emulsification!

Molecular cuisine grew from the experiments of scientist and chef Herve Tisa, linking gastronomy with chemistry and physics. He brought the molecular formula for classical French sauces, learned to change the taste of food by physico-chemical reactions and unusual ways of treatment. In 1988 he coined the term "Molecular and Physical Gastronomy". The pioneers of molecular gastronomy considered Spanish chef Ferran Adria (restaurant El Bulli, Girona), Englishman Heston Blumenthal (The Fat restaurant 320 Duck, London) and Frenchman Pierre Hanyer (restaurant Pierre Gagnaire, Paris). The new trend in cooking explains how to cook meat and fish, how to cook vegetables - so in order to maximally preserve the appearance and useful properties of products. Now the dishes created by the laws of molecular gastronomy is the only delicacy. They are prepared and served in some restaurants in the world - in France, Britain and Germany. Molecular cuisine has nothing common with industrial methods of chemical processing and preservation. All of our food consists mostly of water, therefore the properties of water – one of the most important issues of molecular gastronomy. All the laws of physics and chemistry apply for molecular cooking. The cuisine of molecular gastronomy bases on use liquid nitrogen, vacuum, oxygen and inert gases, agar-agar, various chemical reactions, emulsification, centrifugation, and more. For example, emulsification is adding soy lecithin in such liquids like juices, milk, etc., to further whipping. The result is a foam like soap to decorate food. This is a “visiting card” of molecular gastronomy. You can order a foam salad or meat, fish or
vegetables. Another method is spherification: in liquid mass, such as juice, tea, milk add sodium alginate, mix and slowly pour in a container with cold water and calcium chloride. The result will be spherical ravioli, liquid inside but outside wrapped in a thin film. Molecular gastronomy sometimes called “intellectual”. Cook should not only be able to cook well, but also have the knowledge of physics and chemistry. In cooking here use primarily natural and fresh ingredients - and no industrial methods of chemical treatment. The dish for spice sometimes dipped in liquid nitrogen: inside it stays hot and outside is covered with ice. In the heat treatment both low and high temperatures are used, but the main rule - their exact compliance.

Meanwhile, people who are terrified of fast food, wary of the new experiments, when people hear “molecular gastronomy or molecular cuisine” for the first time they often mistakenly view it as unhealthy, synthetic, chemical and unnatural. But scientists of molecular gastronomy claim that a molecular food is useful and balanced. It is important that meals prepared by "molecular" technology, get a new taste, but retain their useful properties. So this food is not just technological innovation, it is useful to humans. We must distinguish fast food and molecular gastronomy. Chips, candy, drinks with bright flavors are the result of chemical industry. While molecular gastronomy uses only natural products and ingredients. Therefore, the "molecular" dishes are balanced and useful. The first successful molecular gastronomy dishes were named after famous scientists. For example, Gibbs (egg whites with sugar and olive oil in gel form), VAKL (fruit foam), Bame (egg cooked in alcohol). But one of the fabulous molecular masterpieces is Disappearing Transparent Raviolis. Created by molecular gastronomy Chef Ferran Adria, the transparent raviolis became an icon of El Bulli menu in 2009. The transparent and ultra-thin “pasta”, which looks more like a thin plastic wrap, dissolves in the mouth instantly releasing the contents of the ravioli. In this dish, Chef Ferran Adria presented the diner with three transparent raviolis filled with roasted pine nut praline, raw pine nut praline and pine cone oil with roasted pine nut. The customer was asked to dip the raviolis in a green pine cone infusion before eating them. The thin transparent “pasta” melted in the mouth instantly surprising the people one more time.

To become a real professional of molecular cuisine one should explore what transformations occur with the product and what it brings into the body. Molecular gastronomy provides answers to the questions: how to cook meat and fish and save the useful properties of product, how to cook vegetables without losing their natural color. The molecular chef is the real scientist who creates gourmet delicacies in the kitchen!

References:

2. en.wikipedia.org/wiki/Molecular_gastronomy

3. www.molecularrecipes.com/molecular-gastronomy

Scientific supervisor: O. Kokhan.