Molecular gastronomy

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Molecular gastronomy is a subdiscipline of food science that seeks to investigate the physical and chemical transformations of ingredients that occur while cooking. Its programme includes three axis, as cooking was recognized to have three components, which are social, artistic and technical. Molecular Cooking is one application of molecular gastronomy; it means cooking with modern tools. Molecular Cuisine is a modern style of cooking, and takes advantage of many technical innovations from the scientific disciplines.

The term "molecular gastronomy" was coined in 1988 by late Oxford physicist Nicholas Kurti and the French INRA chemist Hervé This. Some chefs associated with the term choose to reject its use, preferring other terms such as modernist cuisine, culinary physics, and experimental cuisine.

Cocktails in ice spheres. Caviar made of olive oil. Disappearing transparent raviolis. Sound cool? Well these are all examples of Molecular Gastronomy. Molecular Gastronomy blends physics and chemistry to transform the tastes and textures of food. The result? New and innovative dining experiences. The term Molecular Gastronomy is commonly used to describe a style of cuisine in which chefs explore culinary possibilities by borrowing tools from the science lab and ingredients from the food industry. Formally, the term molecular gastronomy refers to the scientific discipline that studies the physical and chemical processes that occur while cooking. Molecular gastronomy seeks to investigate and explain the chemical reasons behind the transformation of ingredients, as well as the social, artistic and technical components of culinary and gastronomic phenomena.

Many modern chefs do not accept the term molecular gastronomy to describe their style of cooking and prefer other terms like "modern cuisine", "modernist cuisine", "experimental cuisine" or "avant-garde cuisine". Heston Blumenthal says molecular gastronomy makes cuisine sound elitist and inaccessible, as though you need a degree in rocket science to enjoy it. In the end, molecular gastronomy or molecular cuisine - or whatever you want to call this cooking style - refers to experimental restaurant cooking driven by the desire of modern cooks to explore the world's wide variety of ingredients, tools and techniques. Molecular gastronomy research starts in the kitchen where chefs study how food tastes and behaves under different temperatures, pressures and other scientific conditions.

Molecular gastronomy experiments have resulted in new innovative dishes like hot gelatins, airs, faux caviar, spherical ravioli, crab ice cream and olive oil spiral. Ferran Adria from El Bulli restaurant used alginates to create his system of spherification which gelled spheres that literally burst in your mouth. Heston Blumenthal from The Fat Duck restaurant discovered the ability of fat

to hold flavor and created a dish that had three flavors -basil, olive and onion - with each taste being perceived in sequence. The potential of molecular gastronomy is enormous. It is revolutionizing traditional cooking and transforming dining into a surprising emotional and sensory experience. Watch the video below to get an idea of the endless possibilities!

When people hear the words molecular gastronomy or molecular cuisine for the first time they often mistakenly view it as unhealthy, synthetic, chemical, dehumanizing and unnatural. This is not surprising given that molecular gastronomy often relies on fuming flasks of liquid nitrogen, led-blinking water baths, syringes, tabletop distilleries, PH meters and shelves of food chemicals with names like carrageenan, maltodextrin and xanthan. My wife's first reaction when I surprised her with a liquid pea spherical raviolo was to say "Can I eat this? Is this safe? Why don't YOU try it first?". The truth is that the "chemicals" used in molecular gastronomy are all of biological origin. Even though they have been purified and some of them processed, the raw material origin is usually marine, plant, animal or microbial. These additives have been approved by EU standards and are used in very, very small amounts. The science lab equipment used just helps modern gastronomy cooks to do simple things like maintaining the temperature of the cooking water constant (water bath) , cooling food at extremely low temperatures fast (liquid nitrogen) or extract flavor from food (evaporator). There is still some debate out there about the healthiness of molecular gastronomy but I personally believe there are far bigger health issues in the everyday food we consume. In the end, you are not going to be eating liquid pea spheres every day anyway.

Are you passionate about cooking? Do you have a creative mind? Are you analytical and logical? Then molecular gastronomy could likely become your passion. Molecular gastronomy cooking requires a good balance of left and right brain thinking. Quantities are measured in fractions of a gram or fractions of a percentage. Slight variations in food acidity levels could be disastrous for some dishes. At the same time, molecular gastronomy is about experimenting, being curious. How about serving soup in a tea cup or a sphere in a bended spoon or a salad in a parmesan basket or a bruschetta on a titanium mesh? Ok, maybe the titanium mesh is too much. We'll leave that for the expensive molecular gastronomy restaurants.

References:

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