Chapter 3. Cooking technologies

With the 3rd chapter we enter the second half of the “Cooking and Science” course. During the first lesson, the coordinator of the course, Prof. Pere Castells, together with Prof. Carme González gave a general description about which are the different technologies used in the kitchen. First Pere Castells showed which are the equipment and tools used in professional kitchen and how they work, from the most traditional to the most recent ones (whipping siphon, freeze-dryer, rotary evaporator). Afterwards, Prof. González focused in a more technical theme: heat and its transmission system. The pathway can be direct, as in conduction and radiation, or indirect, as in convective circulation. For each system the students learned the theoretical definition and which equipment represents the best application of this technic [1, 2, 3].

The day continued with the explications of Prof. Robert Soliva on the new cooking technologies. He mainly focused on the non-thermal technologies and their effects on foods: high hydrostatic pressure, electric pulses of high field strength, UV light, cold plasma, magnetic fields, ultrasounds and Ionizing radiation. Since the Paleolithic, humans used technologies to produce, save and modify foods, so it is normal that they keep on developing more and more these technologies. This doesn’t have to scare consumers or arouse suspicions to them. On the other hand this doesn’t mean that we have to forget about our traditions: we have to preserve our products, our culinary culture, and use these new technologies to our benefit.

That is what chef Jordi Herrera tries to do. His lesson was different from the previous ones in fact the class moved to his restaurant, Manairó. The atmosphere was mystic. Chef Herrera is a passionate person and he started explaining his philosophy in the kitchen. Cuisine is a combination of culture (acquired in the family and the place where you live), personality (to express and communicate in the dishes) and technic (ability to create things that others wouldn’t). One of the topics on which chef Herrera focused the most was the socialization of the culinary culture, i.e. how the consumers react to something that isn’t standard. For example, how would people react to a sardine cooked with blowtorch? This leads to the concept of goodness: a dish is good because is good, or because you like it? We will never reach the perfection in a plate because it is a very personal concept; however we can reach the best idea of plate we have.
decided to do, with the technic that we have decided to use. The chef closed this moment with a really significant expression: “Cuisine doesn’t have to be learned, but it does have to be understood”. We have to try to understand the concept that cuisine contains, not the recipes.

Talking about the cooking technologies that chef Herrera uses to prepare his meals, the students had the chance to taste his menu and notice how common is the use of liquid nitrogen and cooking with blowtorch. In addition to the sardine, the one Michelin star chef uses blowtorch also to prepare beef. This was one of the most surprising meals the students tasted, it was called “Fakir Grilled Fillet” and it is cooked with a very curious technic. The fillet is tucked on a nails tablet previously warmed up on fire, and afterwards cooked for a couple of minutes with blowtorch.

The 3rd chapter of the course ended with the lessons of Jordi Guillem and Ada Parellada. Chef Guillem discussed the topic of technology and gases, presenting the different methods to introduce gas into foods. Classic foams such as whipped cream and meringue, foams created using carbon dioxide, gelatin foams created with siphon and air introduction using the mixer, were the techniques explained by the chef of the restaurant Lo Mam [4, 5]. Moreover, it was fascinating to see the use of dry ice pellets for the preparation of some of his dishes.

The classic technology applied to the today’s cuisine, was the theme developed by chef Parellada. The purpose of this idea is to create elaborate dishes, but using easy cooking technologies.


*Graduated in Gastronomic Science at Parma University. Currently doing an internship in the UB-Bullipedia Unit and in the UERCC at the Campus de l’Alimentació de Torribera at the University of Barcelona. This internship is part of the Erasmus+ programme.