



## In the Mood for Chocolate

Brussels Science Apéro <<Love for Chocolate>> explored the chemical and sensual recipe that turns cocoa beans into an irresistible piece of chocolate

The sixth edition of Brussels Science Apéro, called <<Love for Chocolate>>, was probably the sweetest of them all. It took place on Wednesday the 12th of March at the Lounge Bar of the Brussels Marriot Hotel. During the event the speakers, namely the Research Scientist Dr. Andy Chapman, and the Belgian chocolatier Mr Laurent Gerbaud, talked with the attendants about the science and the flavour of this dark object of desire. To top off their presentations, the nutritionist and life coach Ms Valérie Maraud answered all the questions posed in the field of nutrition and wellbeing.

### The Chemistry of Chocolate



*Dr. Andy Chapman*

Advertisement tells us that chocolate is pleasure, sensuality, individual caprice and expression of love. However, from the point of view of a scientist, chocolate is a mix of cocoa solids, sugar, lecithin, milk solids, cocoa butter, and milk fats.

Dr. Andy Chapman explained that lecithin is a sort of glue for all these substances. To prove it, he inserted water, oil and a bit of washing-up liquid in a bottle. He shook it energetically, and showed that due to the lecithin present in the soap, water and oil, in spite of their different densities, mixed together! A similar chemical reaction occurs in chocolate.

The British Research Scientist brought the participants towards an amazing ride from the tropical forests where chocolate beans are collected, to their own kitchens. A sophisticated method of production that includes the fermentation, drying and roast of cocoa beans turns bitter cacao into cocoa butter, without which it would not be possible to create the delightful chocolate that we all know.

The participants of the last Brussels Science Apéro learned as well about the importance of tempering cocoa butter crystals, which is essential for the shiny and compact appearance of chocolate. There is a very specific process of heating and cooling chocolate for avoiding a sandy texture, Modica style, in the final product. "That is why, when we melt chocolate at home at random



*Untempered chocolate*

temperatures, like we do for preparing a cake, the texture of chocolate changes”, Dr. Chapman said. Meanwhile, the participants received samples of both.



*Laurent Gerbaud (right)*

Both Dr Chapman and Laurent Gerbaud highlighted that this process is done due to marketing reasons, because the aspect of the product has to do neither with its nutritional properties nor with its state of conservation. Therefore, if your chocolate bar melted in the car and after putting in the fridge it acquired a dusty aspect, go ahead and eat it without hesitations! It is a matter of appearances. Yet appearances are deceptive!

Among the curiosities unveiled during the Brussels Science Apéro, participants learnt from Dr Chapman that “chocolate bars produce a cooling sensation on the mouth, as it takes energy from it to melt”. It is somehow ironical that in spite of that, the peaks in chocolate sales are concentrated in the coldest months of the year, when chocolate have to wait to reach our mouths to melt. Then, Laurent Gerbaud dug up his sense of humour and said: “I really hope for bad weather. This year is being a nightmare!”

## **The taste of Belgian chocolate**

Laurent Gerbaud is a Belgian chocolatier who self-defines himself as a lover of good things in life. Needless to say, chocolate is among them.

This artisan chocolatier led the more sensorial part of the last Brussels Science Apéro, by offering a journey through taste by a chocolate tasting. The participants could taste the combination of dark chocolate with exotic ingredients brought from faraway lands, including ginger, figs and pistachio. If the first piece of chocolate seemed ‘normal’ at the beginning, when participants tried the same piece at the very end it reminded them of ‘burned plastic’.

Laurent Gerbaud explained that there are the differences between the mass produced chocolate and artisanal chocolate in terms of ingredients and production processes. The range of flavours that good chocolate can provoke, and the slight resemblance to other food or substances like fruits or tobacco, is due to the different raw materials and production processes, rather than to the addition of taste, flavours or additives. “It is just like it happens with good wine”, Laurent remarked.



*Attendant during the tasting*

## **Chocolate and Nutrition**

The Brussels Science Apéro revealed the impact of chocolate in our body and brain. Along these lines, Dr Chapman explained that the stimulating properties of chocolate are partly due to theobromine, a compound that is fairly similar to the caffeine you obtain from your daily coffee. However, unlike humans, not all living beings have the capacity to process it. Regarding this, Dr Chapman warned: “Dogs cannot process theobromine, and therefore chocolate is poisonous for them”.

At this point, Ms Valérie Maraud joined the discussions and explained that chocolate is a valuable source of magnesium and antioxidants that raises the levels of serotonin in our bodies. This neurotransmitter is related with wellbeing. That is why our bodies wisely ask for a piece of chocolate when we feel low of energies or depressed. The nutritionist recommended: “The healthiest chocolate is the one that has, at least, 70% of cocoa, as it has fewer fats than the chocolate that has lower concentrations of cocoa”. “The best time to eat it is around 5 pm, because as cortisone goes lower and you get tired, chocolate will give you a kick”



*Valérie Maraud (right)*

After an intense hour and a half of conversation, experiments and chocolate tasting, the chemist, the chocolatier, the nutritionist and all the curious participants of <<Love for Chocolate>> head back home with the sweet aftertaste of this Brussels Science Apéro.

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