



# Molecular gastronomy

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**Guide** architecture



Molecular gastronomy is a subdiscipline of food science that seeks to investigate, explain and make a practical use of the physical and chemical transformations of ingredients.

# The creators

- They were two at the very beginning, in 1988.
- They wanted to find an explanation to the efficiency of traditional recipes.
- They therefore studied the molecules in some ingredients to understand how they worked.

# Hervé This and Nicholas Kurti



- Hervé This was born in 1955.

- He is a French physical chemist.



- Nicholas Kurti was born in 1908 and died in 1998.

- He was Hungarian.

# Why use molecular gastronomy ?

- .It can be used either for dietary reasons or for gastronomical objectives.
- .For example, molecular gastronomy can sometimes be used if people have allergies. They can replace an ingredient and have the same result as the traditional recipe.

# Our experiments

- .We prepared a molecular gastronomy recipe.
- .This recipe, very common in France, is called « mayonnaise ».
- .The traditional recipe includes egg yolk (the yellow of the egg), oil and mustard.
- .But in our recipe, we used the egg-white and no mustard.
- .Thanks to its neutral taste, you can add subtle flavours such as morel and chanterelle which are mushrooms.

# Chocolate Mousse with « agar-agar »



- .We have prepared a « mousse au chocolat » with a special ingredient called « agar agar ».
- .By replacing the eggs with « agar agar », people who are allergic to eggs can safely eat this dessert.

# « Agar-agar »

- .The word « *agar-agar* » is of Indonesian origin and means « jelly ».
- .« *Agar-agar* » is extracted from boiled red seaweed, filtered, dried and crushed into powder.
- .It can absorb water and be used for many food textures.





## Ingredients :

- 400 ml of milk
- 2 g of agar agar
- 140 g of dark chocolate



# Video



## Mousse

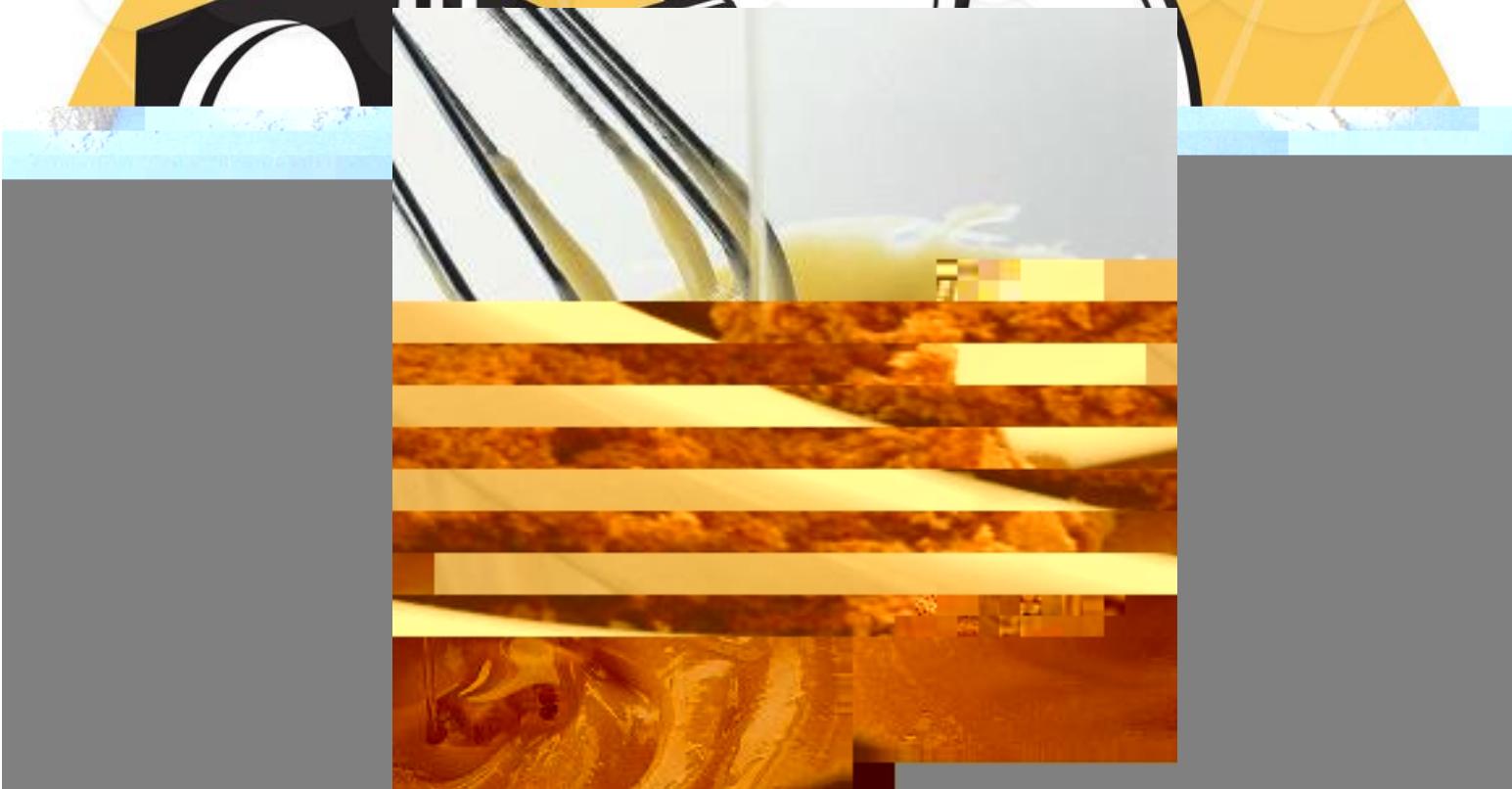
# Chemical reaction

.When the « agar agar » composed of long threads of protein is added in the saucepan, the heat makes them scatter and slowly dissolve into the milk.

.The "agar agar" links the milk and the chocolate as eggs do in the traditionnal recipe.

."Agar agar" is composed by threads of protein, just like eggs.

# Video



## Mayonnaise

# Mayonnaise

- .Hervé THIS explained that proteins were necessary to prepare a « mayonnaise ».
- .In the traditional recipe, it was assumed that only the egg yolk provided the proteins.
- .THIS discovered protein in the egg-white too. The egg-white being composed of 3 g of protein and water.
- .For the new recipe, we mix the protein with oil. The molecules divide in two, then in two again when the egg-white is whipped and so forward until an emulsion is set.
- .First, the oil and egg-white are emulsified together. Adding extra oil while whipping thickens the mayonnaise.

# Conclusion

- .Molecular gastronomy is useful Å
  - for people who are allergic to certain ingredients such as eggs.
  - for special diets.
  - for an innovative cuisine with various textures, shapes and flavours.
  - for modern chefs who want to explore new culinary possibilities.

*That's all folks!*  
*Any Question?*

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