

Molecular Gastronomy in European Perspective

2017/2019



Erasmus+





IMPACT

PARTICIPANTS

1. develop their practical skills and competences in science subjects;
2. be more aware of significance of learning science subjects;
3. be more motivated to learn science subject;
4. understand practical aspect of learning;

SCHOOLS

1. enhance the quality of teaching science subjects;
2. implement new molecular related teaching practice to the lesson plans and curriculum of science subject;
3. development of teaching methods and competences among all school teachers



Zespół Szkół Nr. 56W

Warsaw (POLAND)

Scuola Secondaria 1°Grado "Borgese - XXVII Maggio"

Palermo (ITALY)

OS Gornje Vrapce

Zagreb (CROATIA)

Instituto de Educación Secundaria "Villa de Abaran"

Abaran (SPAIN)



DURING OUR MOBILITIES

MOLECULAR WORKSHOPS

During all mobilities in Poland, Italy, Spain and Croatia students and accompanying person had the possibility to attend molecular workshops learning and experimenting all the proposed activities.

During Polish mobility the team worked with chemical teacher experimenting:

- Reverse spherification with SODIUM ALGINATE and CALCIUM LACTATE
- Foaming using LECITHIN
- Gelification using AGAR
- Ice cream using DRY ICE

In Italy students and teachers attended to a molecular workshop with Prof.Fabio Longarino about:

- Baking meringues using the COOKING WATER of CHICKPEA

During Spanish mobility the team attended to a molecular workshop about:

- Spherification with the use of CALCIUM CHLORIDE
- Creation of Foam for cakes using LECITHIN
- Gelification of soup with agar agar GELIPHICANT

During Croatian mobility students tried to cook:

- Vegan gummy fruit snack using AGAR AGAR POWDER



Warsaw, 9th of November

MOLECULAR & POLISH KITCHEN WORKSHOP MODERN & TRADITION

The purpose of this workshop is to show how to integrate polish gastronomy with modern molecular kitchen. We will present polish traditional dishes and their variations made by one of the molecular techniques – *basic spherification*.

1. What is the molecular kitchen?

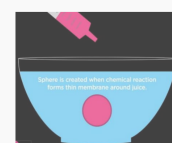
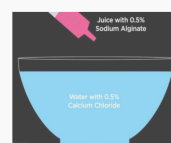
Molecular kitchen is the conscious and intentional blending chemical reactions and physical processes on the worktop to transform the tastes and textures of food. The result is the new and innovative dining experiences. The term Molecular Gastronomy is commonly used to describe a style of cuisine in which chefs explore culinary possibilities by borrowing tools from the science lab and ingredients from the food industry. Molecular gastronomy experiments have resulted in new innovative dishes like fruit caviars, hot gelatins, airs, spherical ravioli, crab ice cream and olive oil spiral.

2. Is it safe?

When people hear the term *molecular gastronomy* for the first time, they often think it is unhealthy, synthetic and chemical. 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. Molecular gastronomy often relies on fuming flasks of liquid nitrogen, syringes, pH meters, that is why it seems to be not safe.

3. What is the basic spherification?

Spherification is a culinary process that employs *sodium alginate* and *calcium chloride*. The *Basic Spherification technique* consists of submerging a liquid with sodium alginate (our base made by juice, honey or alcohol) in a bath of calcium (calcium chloride dissolved in water) to form a sphere.



There is a chemical reaction between sodium alginate and calcium chloride which leads to creation of thin membrane around the liquid and the sphere is created.

DURING SCHOOL LESSONS

During these two years of project Polish, Spanish, Italian and Croatian students had the occasion to discover a new way to study Scientific subjects and to learn through the experience of real life and kitchen. During lessons and laboratory, each school worked on recipes of how own country using all these techniques that now are part of the curricula of our schools:

REVERSE SPHERIFICATION



SOUS-VIDE



FROZEN REVERSE SPHERIFICATION



GELIFICATION



FOAMING



USE TEST TUBES TO PREPARE AND SERVE MEAL



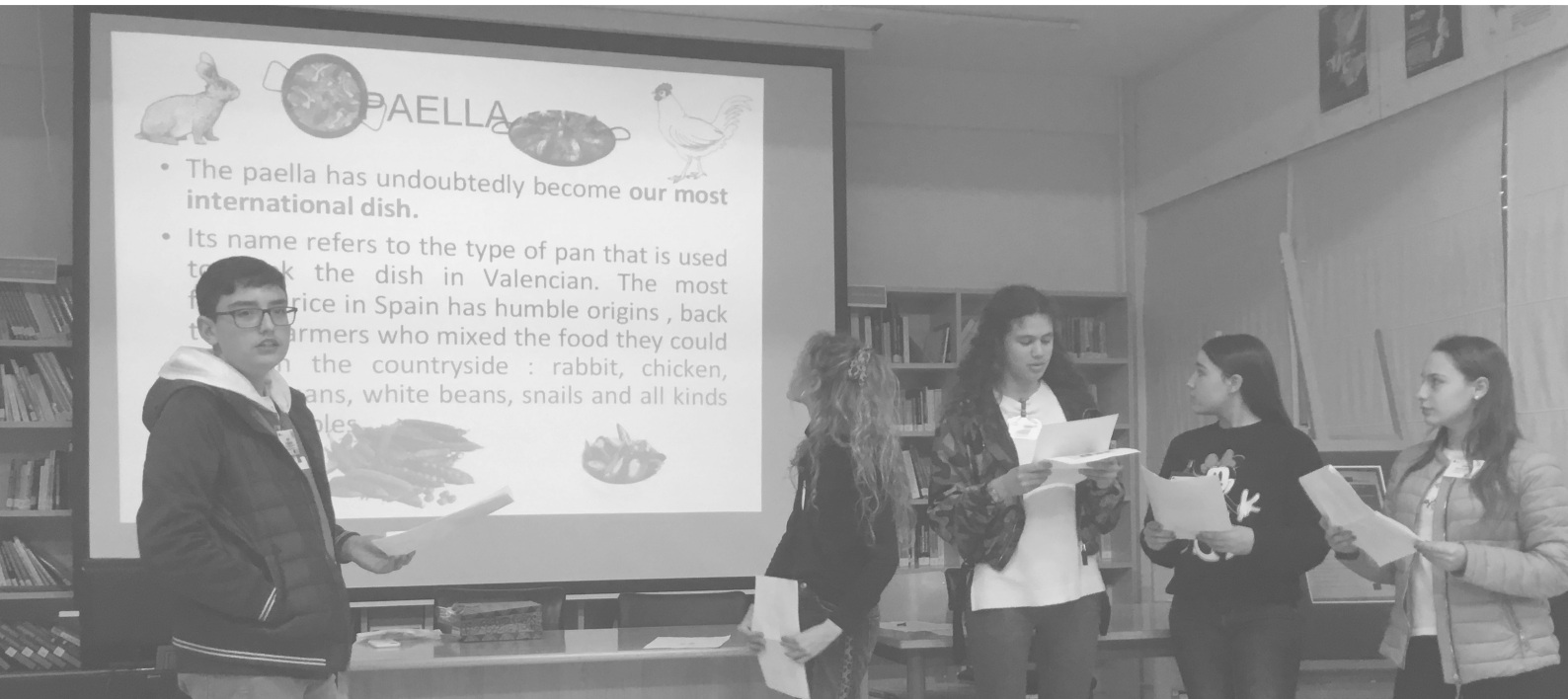
DIY STARCH



DRY ICE



MOLECULAR GASTRONOMY DISHES



**Each partner
cooked typical
dishes of host
country in a new
molecular way and
presented it in
public events
during mobilities**

Using new cooking techniques learned during molecular panels, students have been involved in preparation of typical dishes of country partners.

At the end of the project participants had the opportunity to discover and to invent new versions of more than twenty regional dishes with the implementation of chemical and molecular processes.

MOLECULAR GASTRONOMY DISHES

POLAND

- Zupa pomidorowa z ryżem
- Placki ziemniaczane z gulaszem mięsnym/warzywnym
- Mizeria
- Ciasto drożdżowe z owocami
- Kopytka z sosem mięsnym/grzybowym
- Purée z buraczków z chrzanem
- Szarlotka
- Krupnik
- Kluski śląskie ze skwarkami z boczku/cebuli
- Pomidor z cebulką
- Sernik

ITALY

- Pasta alla Norma
- Involtini di Melanzane (Auberinge stuffed rolls)
- Parfait alle mandorle (Almond parfait)

SPAIN

- Potatos Spanish Omelette Recipe (Tortilla de patatas)
- Traditional Spanish Pisto Recipe
- Buñuelos de Viento Recipe: "Light-as-Air" Fritters

CROATIA

- Potatoes with bacon and cottage cheese with sour cream
- Zagreb steak with potatoes
- Zlevanka

THEMATIC MUSEUMS AND FOOD FACTORIES

DURING MOBILITIES AND SCHOOL TIME THE SUBJECT OF OUR PROJECT HAS BEEN IMPROVED VISITING FOOD FACTORIES AND THEMATIC MUSEUMS

POLAND

Palace of culture and Science - Warsaw

ITALY

Cheese factory - Castelbuono

Salt Museum - Mothia

Florio Wine Factory and Museum - Marsala

SPAIN

Technological Center of Tinned Food - Molina de Segura

Science and water Museum - Murcia

Old professions Museum - Abaran

CROATIA

Museum of food - Koprivnica

Museum of glass bowling - Zadar

Olive and wine biological factory - Polace



FINAL HIGHLIGHTS

The following aims - increasing a practical approach to learning science subjects for improving quality of teaching, helping our students develop practical skills and competences, increasing critical thinking, developing the ability to use theory in practice and raising awareness of learning science subjects, increasing practical skills and competences in ICT and raising cultural openness and tolerance - seem to be achieved analysing measurable and unmeasurable results and effects of the project.

Science, Math,
Chemical and Physic
are now in our
curriculum in a new
way, they belong
from the real life

