Gastrovac®

The vacuum revolution

Gastrovac is a compact appliance for cooking, frying and impregnating in a vacuum. It is patented in over 160 countries and developed together with the Universidad Politécnica de Valencia and the cooks Javier Andrés (Restaurante La Sucursal, Valencia) and Sergio Torres (Restaurante El Rodat, Jávea). It functions as follows: by creating an artificial low pressure, oxygen-free atmosphere, Gastrovac considerably reduces cooking and frying temperatures, maintaining the texture, colour and nutrients of the food. Moreover, the Gastrovac creates the "sponge effect": when the atmospheric pressure is restored, the food absorbs the liquid around it, allowing infinite combinations of foods and flavours.

Vacuum cooking. When we cook food which is not packed at a pressure lower than atmospheric pressure we can make both the cooking liquid and the product constitution water boil at a temperature lower than 100° C. Thanks to that, when we cook vegetables we obtain a preparation which conserves the texture; we can cook them al dente while preserving all their flavours and nutrients.

This type of cooking also makes it possible to enrich the product with the characteristics of the cooking liquid, thanks to the impregnation effect. Moreover, the absence of oxygen in the vacuum prevents the oxidation of the food, so that their original colouring is perfectly conserved.

Vacuum frying. In theory, to fry food we need the cooking medium, oil, to reach temperatures around 170-180° C. Those temperatures cause the oxidation of the oil and the loss of many nutrients. In low pressure conditions, however, it is possible to fry at 90° C, which prolongs the useful life of the oil and —most important— guarantees that the retention of the aromas and nutrients of the product will be far greater.

Vacuum impregnation (with or without previous cooking). Normally most animal products, and especially vegetable ones, have a rather porous structure. That is why the vacuum produces the so-called "sponge effect": during the cooking the air contained in the products expands and comes out; afterwards, when the atmospheric pressure is restored, the food immediately absorbs the liquid in which it is submerged.

With that simple physical foundation, we can let our imagination fly: apples with the flavour of mint, pears in wine, pineapple with coconut, mushrooms which taste like meat... The fundamental thing is for the texture of the product to be maintained without undergoing the softening caused by maceration, which usually causes dehydration with the consequent loss of firmness. Vacuum impregnation also serves to speed up the marinades or seasonings, since it helps the transfer of components (salt, sugar, water) towards the interior of the product.
The equipment comes with two kinds of basket: one for frying, which prevents the food from being impregnated with oil by means of a system which lifts it and eliminates contact between liquids and solids; and another for cooking with subsequent impregnation, which uses the full capacity of the pot.

These charts show a brief compilation of data on the porosity of the fruit and vegetables we have worked with and the percentages of impregnation that can be obtained for each one. The estimated times are around 15 minutes with ambient temperature solutions.

Fruit	**Porosity** (%)	**Impregnation** (%)
Apple (Granny Smith)	21.0	19.0
Mango	5.9	14.2
Peach (Miraflores)	4.7	6.5
Apricot	2.2	2.1
Pineapple	3.7	5.7
Pear (white)	3.4	5.3
Plum	2.0	1.0
Vegetables	**Porosidad** (%)	**Impregnación** (%)
Beetroot	6.0	7.0
Aubergine	59.6	24.0
Cultivated mushroom	37.0	34.0
Wild mushroom	10.3	30.0
Courgette	18.0	20.0