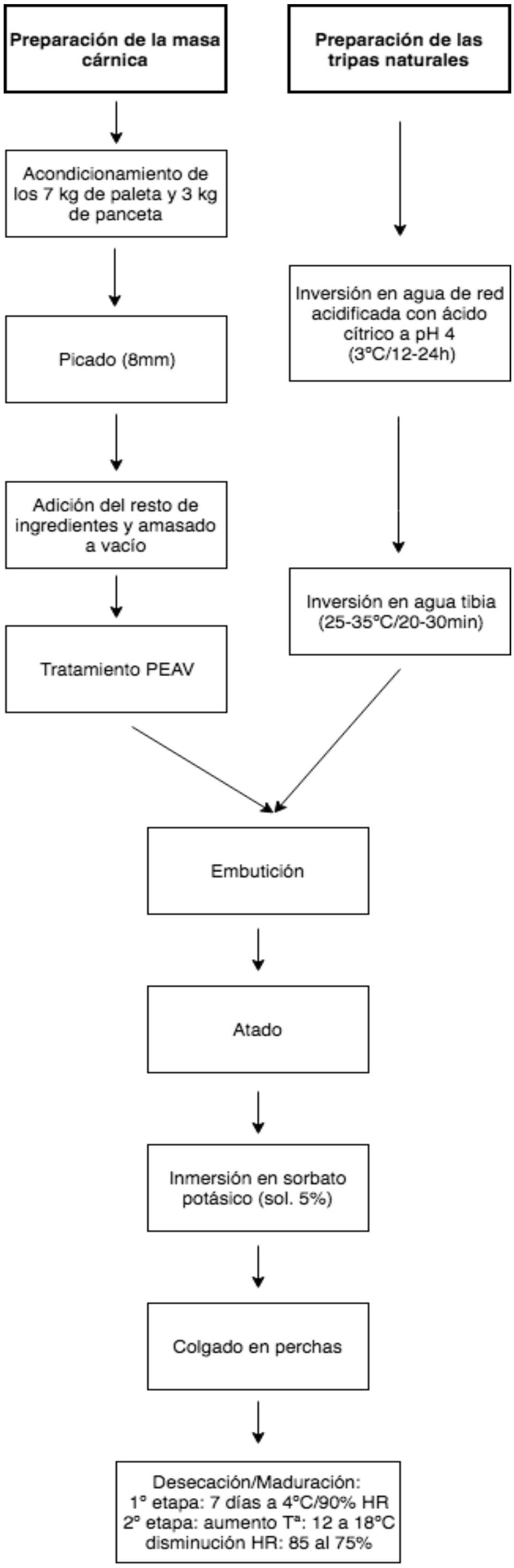
ANEXOS

1. DIAGRAMA DE ELABORACIÓN DE LONGANIZA (Vidal, 1997)



2. MODELIZACIÓN MEDIANTE EL MODELO MATEMÁTICO DE FICK Y EL MODELO DE GEERAED

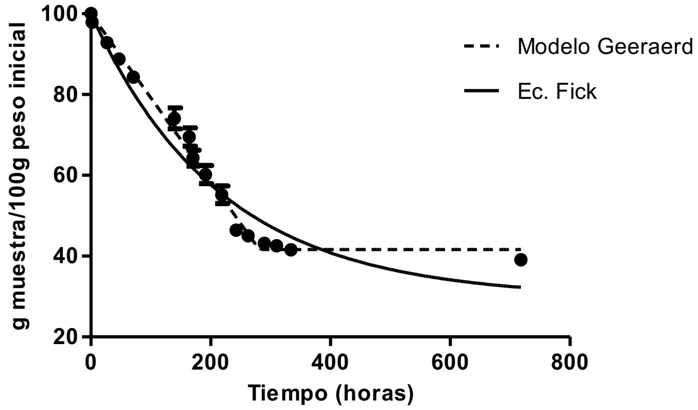


Figura A2. Modelizaicón de la curva de deshidratación de muestras de carne de cerdo sin tratar y de 2.5mm de tamaño de picado mediante el modelo matemático de Fick y el de Geeraerd.

3. COMPARACIÓN ESTADÍSITCA DE LOS MODELOS

Tabla A3. Comparación de la bondad del ajuste de los dos modelos matemáticos (modelo de Fick y modelo de Geeraerd) empleados para el ajuste de las curvas de deshidratación de carne de cerdo picada. Según distintos tamaños de picado: a) 2,5 mm; b) 4.0 mm; c) 6.8 mm

a)

	Control 2.5 mm		PEAV 2.5 mm	
	Fick	Geeraerd	Fick	Geeraerd
R^2	0,9539	0,9932	0,9588	0,9947
ECM	4,3552	1,7850	4,3035	1,6169
B_f	0,9992	1,0011	0,9988	1,0011
A_f	1,0903	1,0321	1,0928	1,0300

b)

	Control 4.0 mm		PEAV 4.0 mm	
	Fick	Fick	Fick	Geeraerd
R^2	0,9602	0,9595	0,9595	0,9951
ECM	4,1849	4,2460	4,2460	1,7195
B_f	1,0014	1,0010	1,0010	1,0101
A_f	1,0868	1,0925	1,0925	1,0326

c)

	Control 6.8 mm		PEAV 6.8 mm	
	Fick	Geeraerd	Fick	Geeraerd
R^2	0,9638	0,9954	0,9593	0,9950
ECM	3,7766	1,6079	4,1166	1,5947
B_f	0,9958	0,9976	0,9976	0,9995
A_f	1,0815	1,0297	1,0893	1,0307

4. IFT-EFFOST 2018 INTERNATIONAL NONTHERMAL PROCESSING WORKSHOP AND SHORT COURSE

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Basic study of the effects of Pulsed Electric Fields in meat drying process

Astráin, L., Raso, J., Cebrián, G., Álvarez, I.

Departamento de Producción Animal y Ciencia de los Alimentos. Tecnología de los Alimentos. Facultad de Veterinaria. Instituto Agroalimentario de Aragón– IA2 - (Universidad de Zaragoza-CITA), Zaragoza, Spain.

Pulsed Electric Field (PEF) technology can cause cell electroporation accelerating water diffusion processes as it happens when dehydrating food products. This can be of interest in meat cured products such as cured sausages that have long drying states. However, there is hardly any data concerning to this point.

Therefore, the aim of this work was to make a basic study about the potential of PEF technology to accelerate drying process in meat

PEF treatments were applied in 2cmx2cm loin pork samples evaluating the influence of different PEF (electric filed strength, pulse width, specific energy, muscle cell orientation) and air drying parameters (air temperature, meat size pieces/particles) on the dehydration of meat.

It was determined an optimal PEF treatment of 1 kV/cm, 200 μs of pulse width and 28 kJ/kg applied to meat samples with a perpendicular muscle cell orientation respect the electric field strength, increasing dehydration by 60.4% after the same dehydration time at 4ºC.

The size of meat pieces/particles noticeably influenced dehydration rates determining the highest rates in samples with a surface/volume ratio of 5.50. This effect tended to disappear when decreasing the particle size in minced meat.

In a first approach, no differences in dehydration rates were observed after 30-days curing of cured sausages (Spanish “longaniza”) from PEF- and non-PEF-treated meat mixed with fat. However, texture analyses presented lower shear force values and the sensory evaluation was favourable to PEF-treated longanizas.

These results show the potential of PEF technology in drying processes of meat based on the permeabilization of muscle cells. Even so, further research is necessary into structural cell changes and the effects of PEF in minced meat dehydration.