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The diversity of food processes in organic short chains: the case of artisanal pasta

Lucille Gey, Marie Françoise Samson, Kristel Moinet, Grégori Akermann, Yuna Chiffolleau, Anaïs Echchatbi, Marie-Hélène Robin, Gwénaëlle Jard, Dominique Desclaux

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FROM ITS ROOTS
organic inspires life.

SCIENCE

Organic food processing: methods,
quality and nutrition



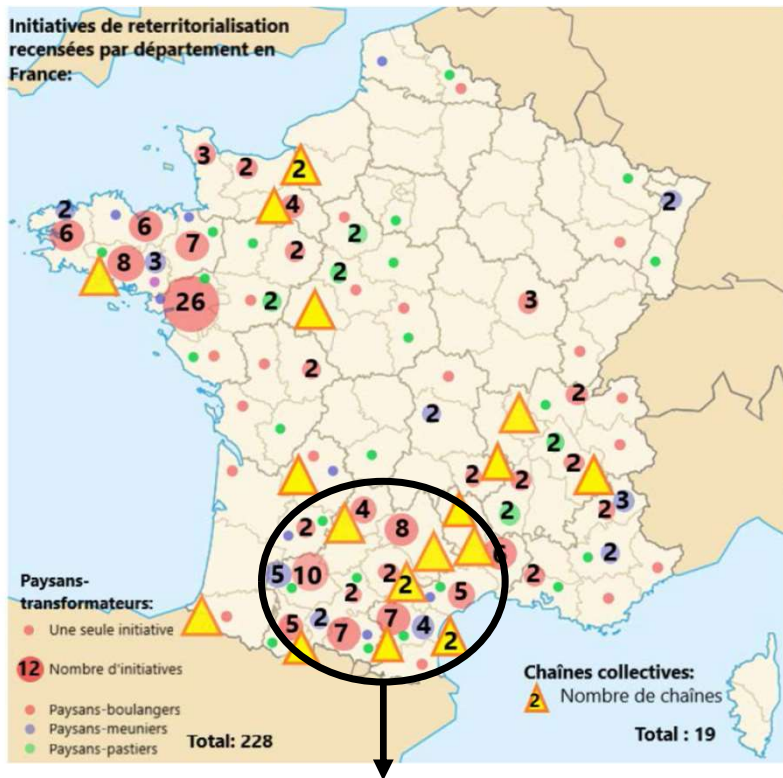
The diversity of food processes in organic short chains: the case of artisanal pasta

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Yuna CHIFFOLEAU.





« Activa Blé »

Support the **technological innovations** and **value creation** in **artisanal wheat sectors**: **interdisciplinary** and **participatory** research in Occitania



Durum wheat (landrace and modern)

Other cereals or grains



Roller mill / Millstone

→ *Semolina/Flour/Bran*



Hydratation (20-30%)

Mixing (5-30 min)



Extrusion (Optimal t°C=40°C, press ventilation) / Rolling

→ *Fresh pasta*

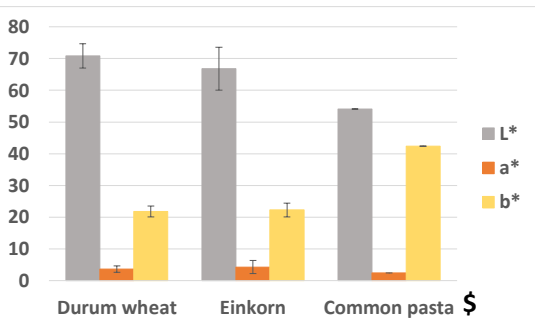
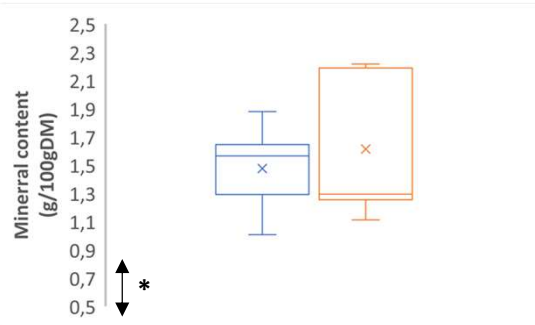
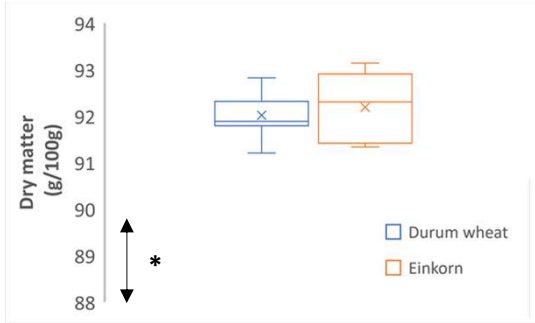


Temperature (50°C/12h – 90°C/5h)

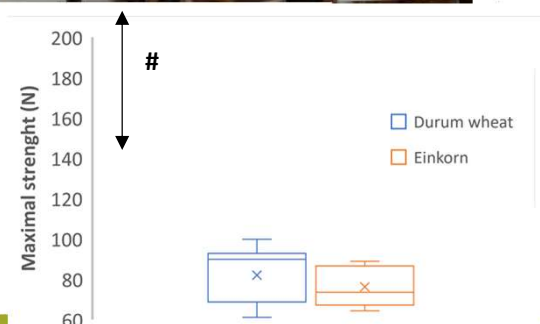
→ *Dry pasta (9%-12%DM)*



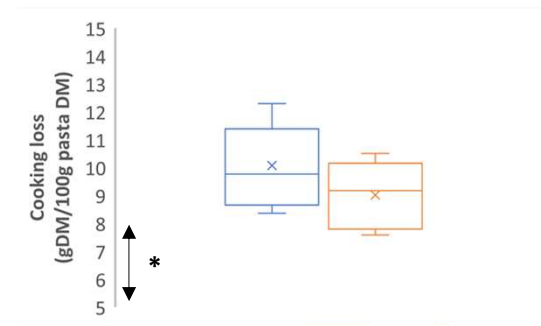
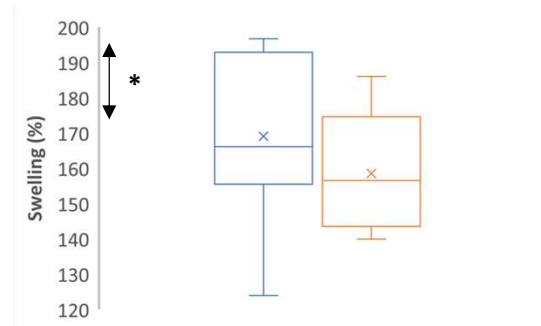
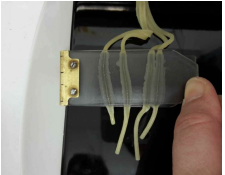
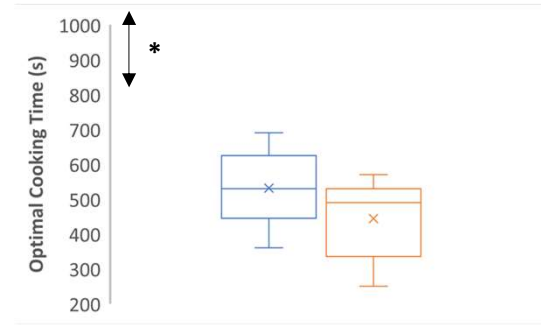
1. Dry matter, minerals content, L*a*b* color



3. Texture



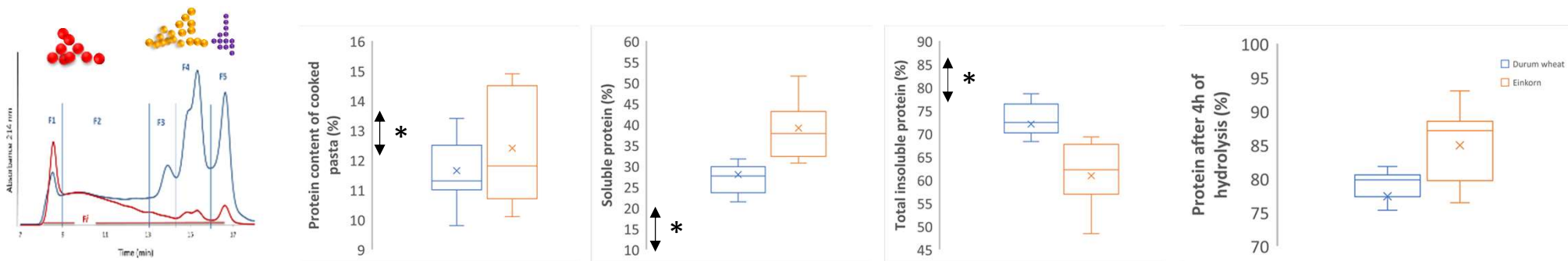
2. Cooking characteristics



Value for common pasta from durum wheat semolina ^{*,#,\$}

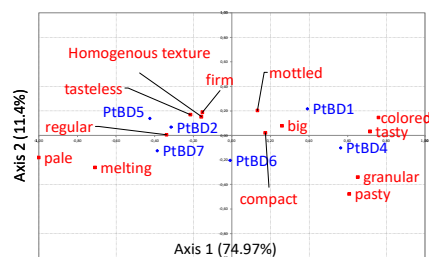
*Laleg *et al.*, Innovations agronomiques, 2017
 #Denis Cassan, data not published
 \$Martin *et al.*, Journal of Cereal Science, 2019

4. Focus on protein profile

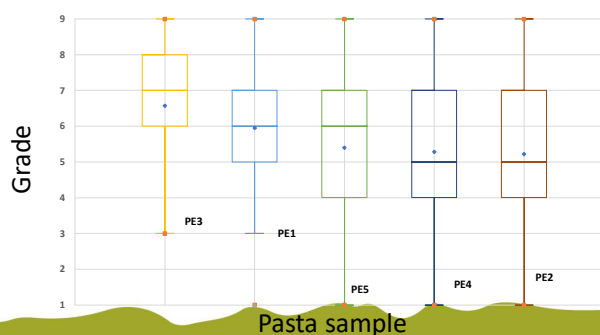
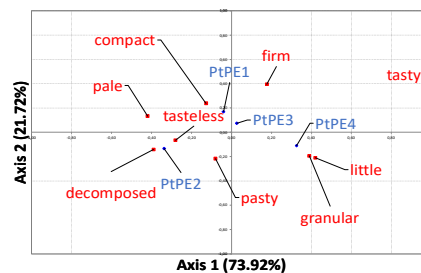


5. Sensory evaluation

Pasta from durum wheat



Pasta from einkorn



6. Nutritional allegations

	BD1	BD7	pasta (openfoodf act)	lentil pasta	chick pea/ buckwheat pasta	
Energie (kcal/100g)	360	363	330 kcal	346	354	
Energie (kJ/100g)	1524	1534	1 370 kJ	1465	1499	naturally without
Fat (g/100g)	1,4	3	2,5	1,2	3,1	naturally very poor in
Including saturated fatty acids (g/100g)	0,3	0,6	0,6	0,2	0,6	naturally poor in
Glucides (g/100g)	77,5	74,4	62,6	59,5	73,2	
Assimilables glucides (g/100g)	74,0	65,7		54,3	66,6	
Including sugar (g/100g)	4,7	5	2,6	3,7	5,4	low in
Fibers (g/100g)	3,6	8,7	3,6	5,2	6,6	naturally a source of
Proteins (g/100g)	11,0	13,9	11,5	27	12,0	naturally rich in
Salt (g/100g)	0,06	0,01	0,218	traces	traces	
Sodium (g/100g)	0,02	< 0,01		9,7	9,9	
Vitamin B9 (µg/100g)	45	59	129	2,8	2	
Vitamin E (mg/100g)	0,2	0,5		<0,005	<0,005	
Iron (mg/100g)	2,0	2,4	2,4	5,3	4,9	
Potassium (mg/100g)	266	543	224	802	517	
Magnesium (mg/100g)	64	101	98	67,9	120	

INCO 1169/2011

Value for common pasta from durum wheat semolina*

*Petitot *et al.*, Food chemistry, 2009

Belahcen *et al.*, Pangborn August 2021



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Congress 2021**

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Thank you!

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