Persimmon flour co-products as novel ingredients in the reformulation of pork liver pâté

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Objectives

The aim to the study was to enrich pork liver pâté with persimmon flour co-products at two concentrations, 3 and 6% and to compare their total cholesterol, fatty acid polyphenolic compounds profiles and lipid oxidation after in vitro digestion with the control pâté.

Material and Methods

Elaboration of three different batches of pate formulations:

- ✓ **Control pork liver pâté** (CP) (without persimmon flour)
- ✓ **Pork liver pâté enrichment with 3% of persimmon flour** cv "Rojo Brillante" (P-3RB)
- ✓ **Pork liver pâté enrichment with 6% of persimmon flour** cv "Rojo Brillante"(P-6RB)

Material and Methods

Polyphenol profile (HPLC)

Fatty acid profile (GC)

Total cholesterol (HPLC)

In vitro gastrointestinal digestion (Cost-Infogest method)

Lipidic oxidation (TBARS assay) after *in vitro* digestion

Results

Monoinsaturated>saturated>poliinsaturated

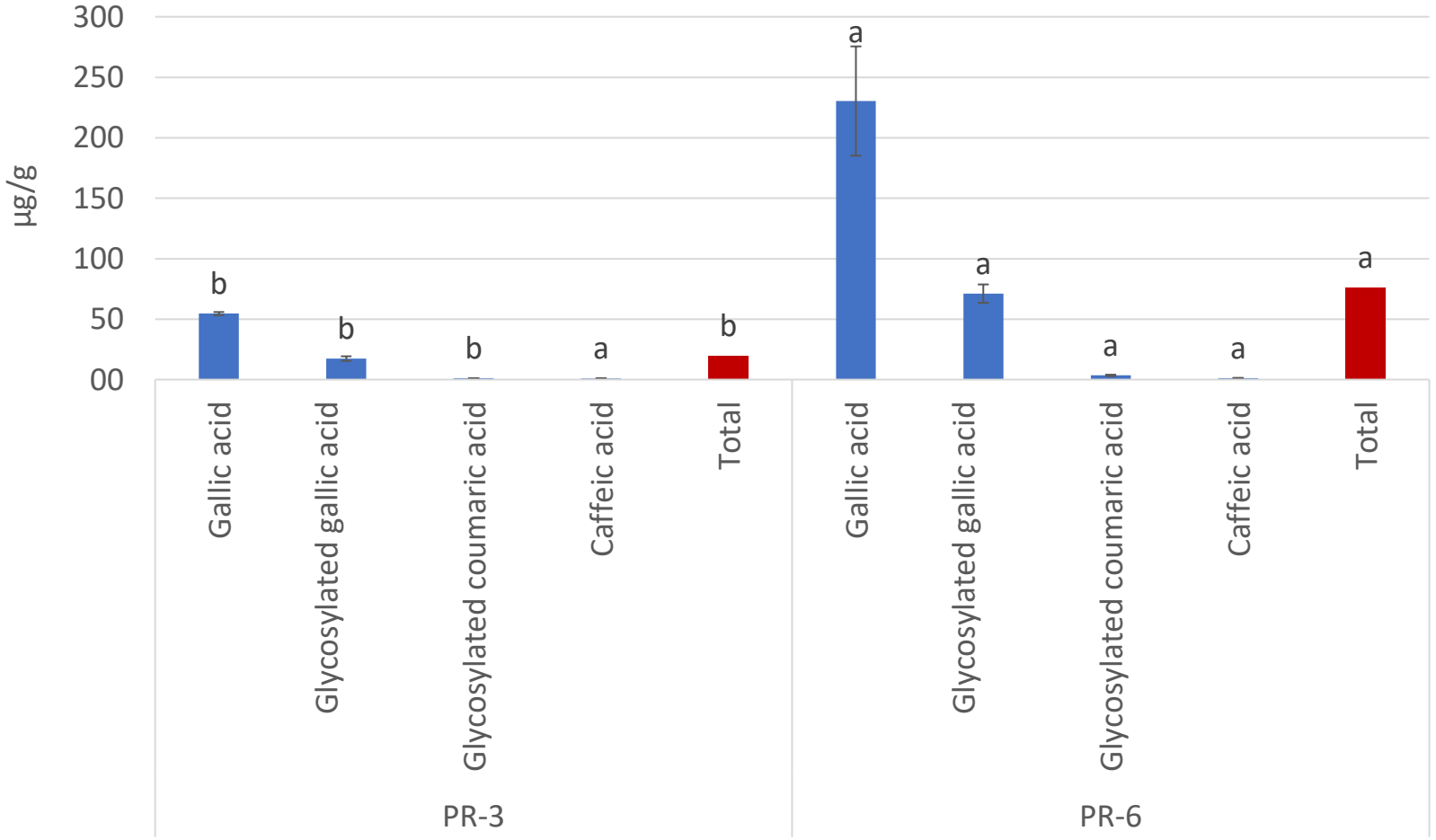
Table 1. Total cholesterol in pork liver pâté samples.

	Total cholesterol (mg/100g)
CP	98 ± 8^{bc}
P-3RB	89 ± 3^{b}
P-6RB	68 ± 11^{ab}

CP: control pâté; P-3RB: pork liver pâté enrichment with 3% of persimmon flour cv "Rojo Brillante"; P-6RB: pork liver pâté enrichment with 6% of persimmon flour cv "Rojo Brillante". Different Lower letters (a-c) indicate significant differences.

Results

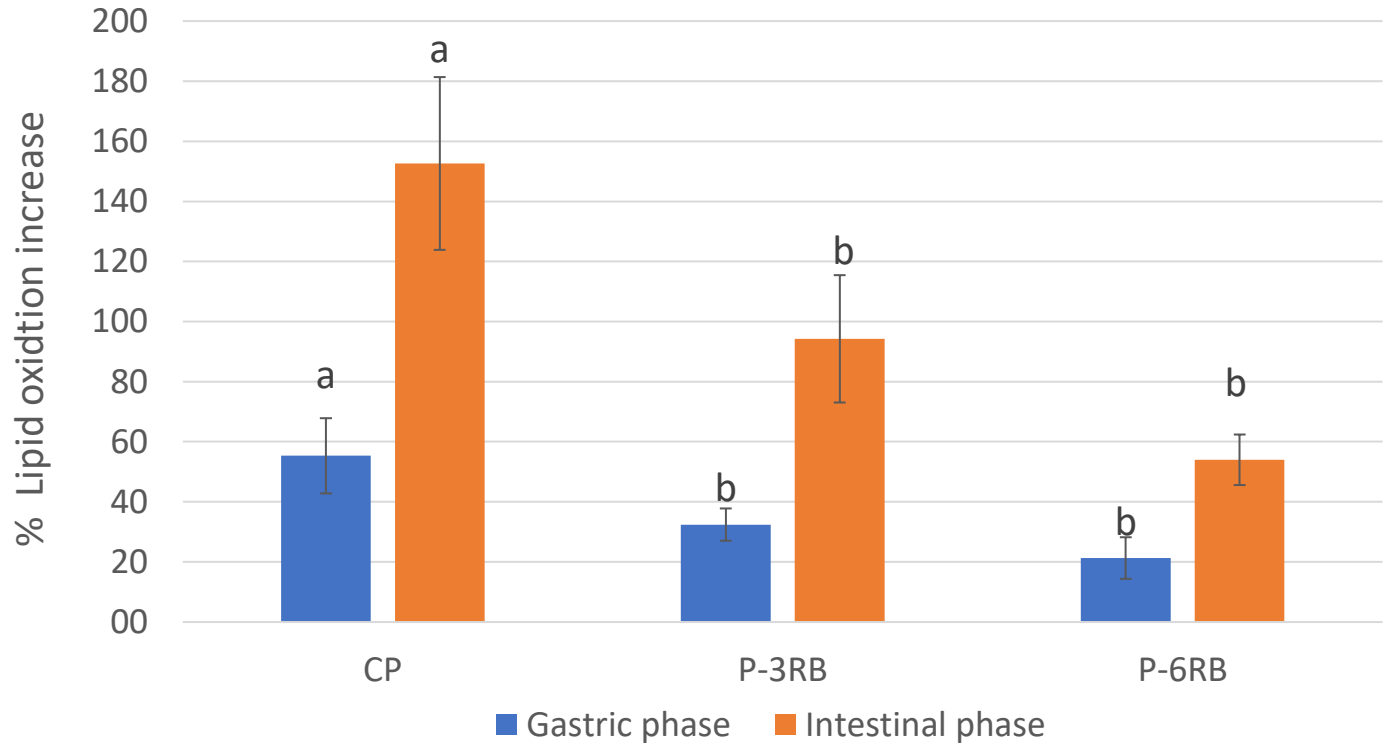
Figure 1. Polyphenol profile in pâté enriched with persimmon flours.



CP: control pâté; P-3RB: pork liver pâté enrichment with 3% of persimmon flour cv "Rojo Brillante"; P-6RB: pork liver pâté enrichment with 6% of persimmon flour cv "Rojo Brillante". Total: Sum of four polyphenols quantified. Different case lower letters (a-b) for each individual phenolic compound and the total indicate significant differences between the two studied samples.

Results

Figure 2. Lipidic oxidation increase (%) of pork liver pâté samples after *in vitro* gastrointestinal digestion.



CP: control pâté; P-3RB: pork liver pâté enrichment with 3% of persimmon flour cv "Rojo Brillante"; P-6RB: pork liver pâté enrichment with 6% of persimmon flour cv "Rojo Brillante". Different case lower letters (a-b) for each simulated digestion phase indicate significant differences between the three studied samples.

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Conclusions

The enrichment of pâté with persimmon flours caused a reduction in their total cholesterol content and lipid oxidation after in vitro digestion, without modifications in their fatty acid profile to what the phenolic compounds contributed by persimmon flours could be contributing.