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CHIA OLEOGEL AS A POTENTIAL NEW INGREDIENT FOR HEALTHY COOKED MEAT SAUSAGES

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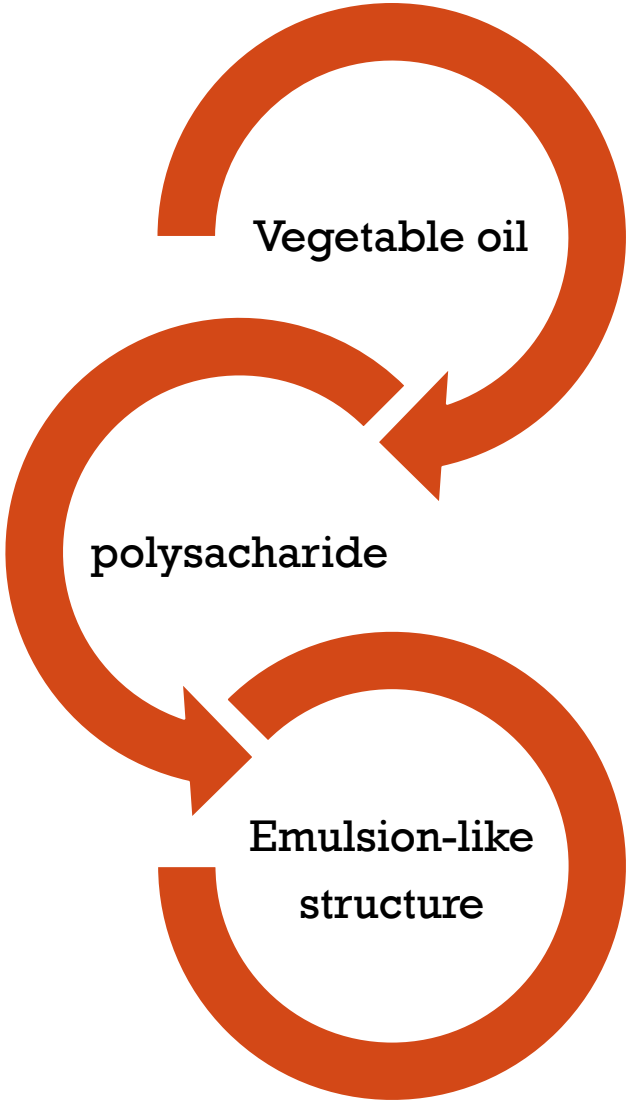
INTRODUCTION

- Pork backfat as fat source in meat products: excellent technological properties but high concentration in saturated fatty acids
- Relation saturated fats and health
- Searching for pork backfat substitutes with 2 conditions:
  - Fat mimetic: similar technological properties than pork backfat
  - Healthy lipid profile

OLEOGELS

INTRODUCTION

OLEOGELS



MATERIALS AND METHODS

OLEOGEL (CNEWO)

VS

PBF

CHIA OIL

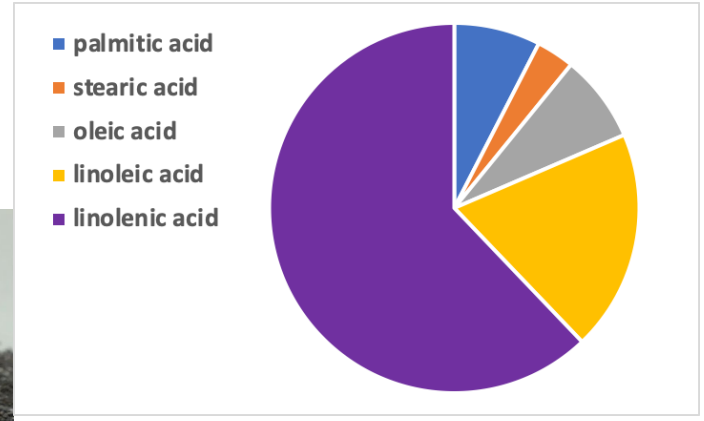
CHIA MUCILAGE + EGG WHITE

Emulsion-like structure

CHIA MUCILAGE

+

EGG WHITE



CHIA OIL

MATERIALS AND METHODS

PBF

OLEOGEL (CNEWO)

CONTROL	100% PBF	-
25%	75% PBF	25% CNEWO
50%	50% PBF	50% CNEWO
75%	25% PBF	75% CNEWO

MATERIALS AND METHODS

Moisture content

Fat content

pH

Water activity

Lipid oxidation

Residual nitrite level

Colour properties

RESULTS

Table 1. Residual nitrite level, fat content and lipid oxidation (TBARS values) of Frankfurt-type sausages with different level of fat replacement by chia-mucilage egg white-based oleogels

CMEWO %	Residual nitrite level (mg/kg)	Fat (g/100g)	TBARS (mg MA/kg)
Control	35.12±5.05	22.35±0.45a	0.36±0.06b
25	ND	20.75±0.18b	0.36±0.01b
50	ND	23.45±0.68a	0.58±0.04a
75	ND	23.85±0.68a	0.58±0.05a

[a-b] Similar values in the same column indicates not significant differences (P>0.05)

RESULTS

Table 2. Moisture content, pH and water activity of Frankfurt-type sausages with different level of fat replacement by chia-mucilage egg white-based oleogels

CMEWO %	moisture content (g/100g)	pH	water activity
Control	69.54±0.37c	5.90±0.02d	0.984±0.002a
25	70.94±0.09b	6.01±0.02c	0.980±0.000b
50	72.01±0.43a	6.11±0.01b	0.976±0.001c
75	69.56±0.12c	6.25±0.01a	0.969±0.001d

[a-D] Similar values in the same column indicates not significant differences (P>0.05)

RESULTS

Table 3. Values of the CIELAB colour space coordinates [luminosity (L *), red / green coordinate (a*), yellow / blue coordinate (b *)], psychophysical magnitudes [chroma (C *) and hue (H *)] and colour differences (DE *) in Frankfurt-type sausages with different levels of substitution (0, 25, 50, 75%) of the animal fat for a chia mucilage-egg white-based oleogels.

CMEWO %	L*	a*	b*	C*	H*	ΔE*
Control	47.76±1.20d	2.60±0.40a	9.10±1.68b	9.47±1.64b	73.67±2.90a	-
25	54.51±3.20c	2.22±0.29ab	12.46±1.88a	11.66±2.41ab	73.85±3.01a	8.80±0.34b
50	58.45±2.17b	1.77±0.24b	13.07±1.87a	13.20±2.18a	75.05±3.98a	10.16±0.88a
75	59.12±0.03a	1.66±0.20b	13.97±1.44a	13.48±2.56a	73.85±0.68a	10.29±0.55a

[a-D] Similar values in the same column indicates not significant differences (P>0.05)

CONCLUSIONS

- ✓The use of chia mucilage-egg white-chia oil oleogels is feasible in the cured-cooked sausage industrial processing.
- ✓Water activity was reduced and pH increased in all samples in which CMEWO was added. Fat content was similar to control in samples with 50% and 75% pork backfat replacement although showed a higher susceptibility to lipid oxidation. Residual nitrite levels were not detected in all samples in which CMEWO was added.
- ✓Thus, the use of chia oleogels is feasible in an industrial process and can be a good source to reduce nitrite residual level.

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ChiQui MEATS

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