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COFFEE CASCARA GLUTEN-FREE BREAD: A HEALTHY LIPID PROFILE?

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INTRODUCTION

Coffee cascara (CC) is the major by-product in the process of obtaining green beans. It may be considered as a source of gluten-free natural[1] and sustainable dietary fiber[2] with low fat content[3] (1.5-3%).

Bread is considered as a basic food in the Mediterranean diet with high carbohydrate content and low fat. The application of bioactive compounds from CC for improving the nutritional quality of the gluten-free bread is possible[4].

OBJECTIVE

To gain insight into the lipid profile of the insoluble fraction of coffee cascara (IFCC) and its impact on the nutritional and sensory properties of novel gluten-free breads made with IFCC.

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METHODS

1. Isolation of IFCC and preparation of gluten-free breads

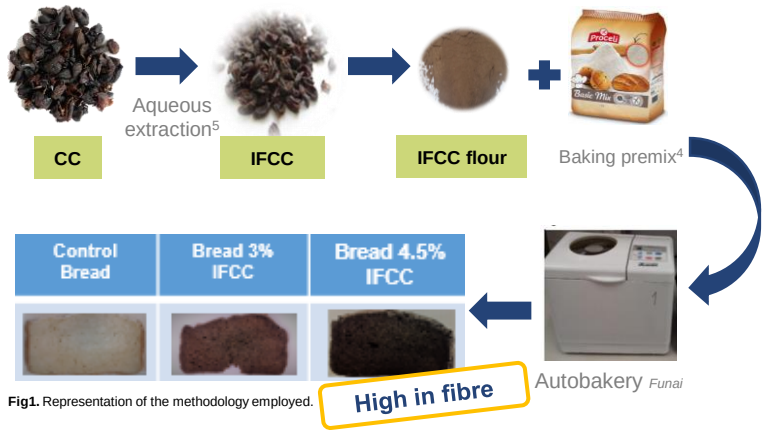

Fig1. Representation of the methodology employed.

2. Determination of lipids

3. Water and Oil Holding Capacities (WHC, OHC)[6]

4. Sensory analysis

RESULTS

1. Total fat content (%)

- **CC** → 2±0.5[a]
- **IFCC** → 2.71±0.8[a]
- **Control bread** → 2.95±0.35[a]
- **Bread 3% IFCC** →2.75±0.52[a]
- **Bread 4.5% IFCC** → 2.51±0.22[a]

Palmitic, linoleic (n6) and linolenic (n3) acids were most the abundant.

2. WHC, OHC

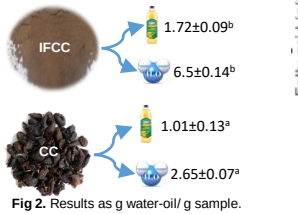

Fig 2. Results as g water-oil/ g sample. Different letters indicate significant diferences among samples (Tukey test, $p<0.05$).

Significant differences ($p<0.05$) in WHC/OHC between IFCC and CC.

3. Fatty acids profile

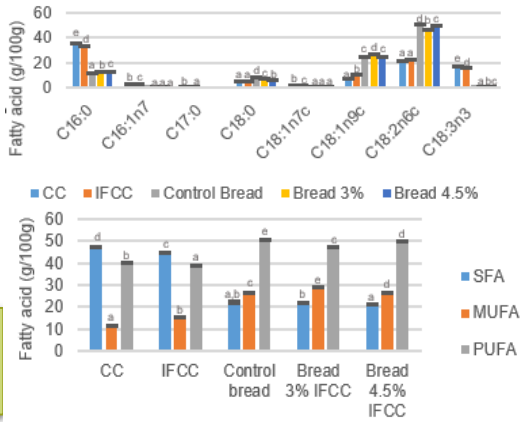

Fig 3. SFA, saturated fatty acids; MUFA, monounsaturated fatty acids; PUFA, polyunsaturated. Results are the mean ± SD (n=3). Different letters indicate significant diferences (Tukey test, $p<0.05$).

In all samples PUFA/SFA ratio was >0.45, as recommended by the WHO[8].

4. Sensory analysis[7]

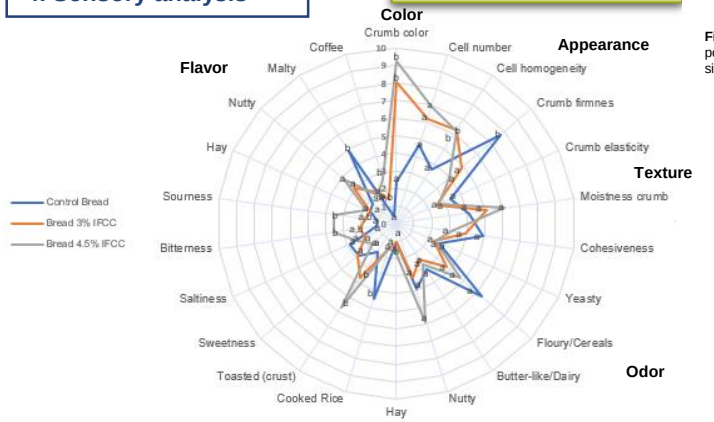

Fig 4. Spider chart diagram which shows mean scores of 0-10 by trained panelists (n=8) . Different letters indicate significant diferences among samples (Tukey test, $p<0.05$).

IFCC affected appearance, texture, odor and flavor attributes of breads.

CONCLUSION

IFCC has potential as a valuable ingredient for the production of healthy gluten-free baked products with positive effects on nutritional and sensory quality.