

Nutritional characterization of acorn flour (a traditional component of the Mediterranean gastronomical folklore)

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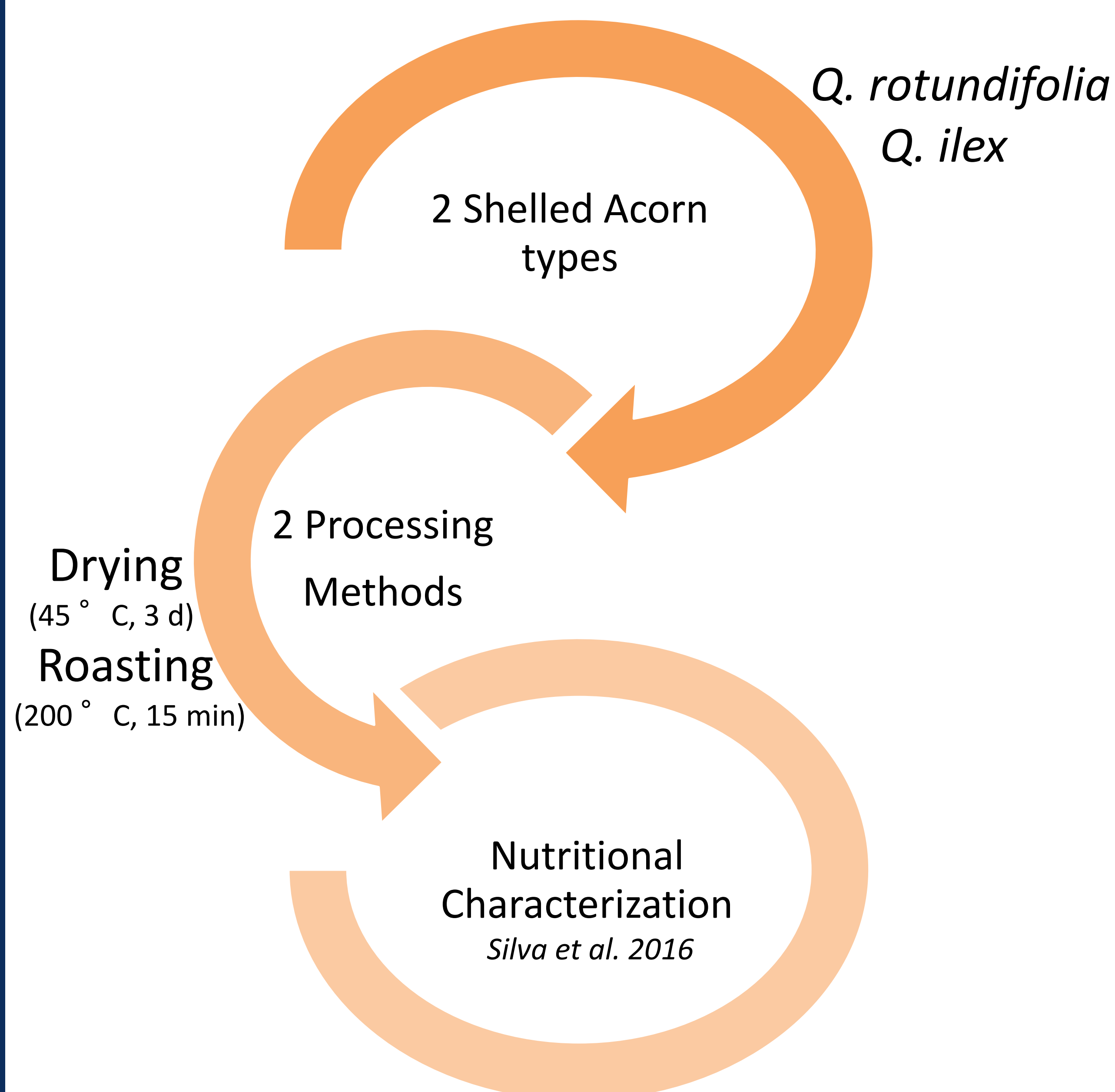
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Introduction

Nowadays, acorns, the fruits of *Quercus* trees, are mostly associated with animal feed. However, they are part of the traditional gastronomical folklore of several Mediterranean countries. Though several uses can be mentioned, one of the most common uses is powdering the acorns in order to produce a flour that can substitute regular corn flour in the manufacture breads and cakes. An example of this is acorn bread, a typical Portuguese loaf. However, to the best of our knowledge, there is no information about the nutritional value of these flours. As such, the main goal of this work was to describe the nutritional value of acorn flours from two different subspecies of *Quercus* abundant in Portugal (*Quercus ilex subsp. ilex* and *rotundifolia*) and obtained using two different traditional methods (drying and roasting).



Methods



Results

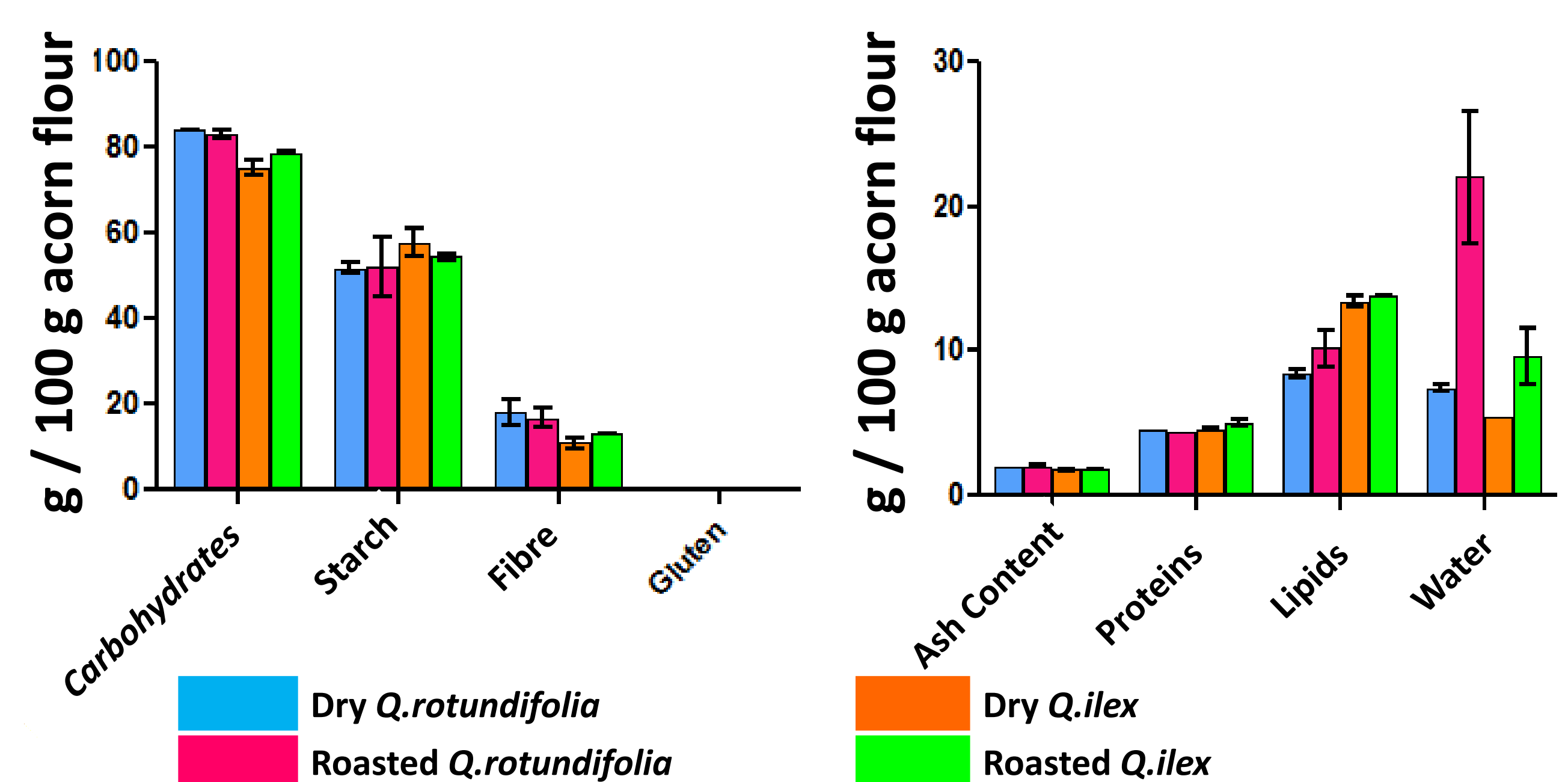


Figure 1. Nutritional characterization of acorn flours.

Table 1. Fatty Acid Profile of the different flours.

| Fatty Acid | <i>Q. rotundifolia</i> | | <i>Q. ilex</i> | |
|---------------------------------|------------------------|---------|----------------|---------|
| | Dry | Roasted | Dry | Roasted |
| C14:0 Miristic | 0.09% | 0.10% | 0.09% | 0.08% |
| C15:0 Pentadecanoic | 0.04% | 0.04% | 0.04% | 0.03% |
| C16:0 Palmitic | 14.21% | 14.76% | 14.98% | 14.09% |
| C18:0 Stearic | 2.33% | 2.76% | 3.25% | 3.27% |
| C16:1(n-7) Palmitoleic | 0.10% | 0.10% | 0.08% | 0.08% |
| C18:1(n-9) Oleic | 60.92% | 60.89% | 59.85% | 60.35% |
| C18:1(n-7) cis-Vacenic | 0.93% | 0.91% | 0.82% | 0.82% |
| C20:0 Araquidonic | 0.28% | 0.30% | 0.38% | 0.39% |
| C18:2(n-6) Linoleic | 15.91% | 15.69% | 15.49% | 15.34% |
| C18:3(n-3) Linolenic | 0.71% | 0.84% | 0.63% | 0.65% |
| C20:1(n-9) Eicosenoic | 0.55% | 0.53% | 0.53% | 0.54% |
| C20:2(n-6) Eicosadienoic | 0.18% | 0.17% | 0.19% | 0.01% |

Conclusions

- Acorn flours are a gluten free flour
- They have relevant protein and fibre content
- Flours have a relatively high lipidic content
- 79% of the lipids found are unsaturated fatty acids

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References

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