STUDY OF ACORN BEVERAGES WITH PREBIOTIC POTENTIAL AND ANTIOXIDANT ACTIVITY

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Acorns, the fruit from Quercus trees, were once a staple food though nowadays, they are frequently left unharvested. While not typically considered a byproduct, acorns are an unexploited resource abundant in the Iberian Peninsula and are a common residue in cork production.

Given the history associating acorns with human consumption and their use, in traditional medicine, for the amelioration of gastrointestinal disorders, the present work aimed to determine antioxidant activity and the effect upon gut microbiota of an acorn beverage. To do so, the acorns were leached overnight, homogenized with water and filtered in order to yield a milky looking beverage. The resulting beverage was assessed for antioxidant activity and total phenolic content. The beverage was incubated with fecal slurry from two different donors, and their impact upon organic acid production was determined (after 0, 6, 24, 30 and 48 h), using inulin (a known prebiotic) as a positive control.

Results show that, after 48 h, the total short-chain fatty acids (SCFA) were significantly higher than those observed for inulin in both donors, with the increase rates ranging from 12 to 41%. The major compounds associated with this difference were found to be acetic and lactic acid, which may hint at higher levels of bifidobacteria or lactic acid bacteria in the fermentations that occurred in the presence of acorn beverage. The antioxidant capacity of this beverage was 0.478 ± 0.01 g of AAE/L and the total phenolic content 0.405 ± 0.00 g of GAE/L.

Though too early to draw definitive conclusions, the results obtained in this work demonstrate a considerable potential of acorn beverages in the promotion of gastrointestinal health with additional antioxidant value.

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