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Acorns as a food resource

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The oaks (*Quercus spp.*) comprise the largest genus Fagaceae, an important family of evergreen or deciduous trees of temperate and tropical climatic areas. The acorn is a one-seeded nut, the hard, dry and indehiscent fruit of oaks, derived from a unilocular ovary of fused carpels [1]. Acorns are an interesting source of carbohydrates, fats and fibers and also contain protein, amino acids and vitamins, mostly A and C. Additionally, it has been proven its antioxidant effects [2]. Appreciation of acorn has been increasing, because of its potential as a food resource. The goal of the present review is to compile the published information about nutritional, phytochemical and bioactive composition of acorns.

Analytical data gathered from a limited number of acorn samples show a considerable variation in nutrient composition, particularly for crude proteins and fat contents. The most significant difference between acorns of different species is their fat amounts [3]. Acorns of some species are more astringent than others what is related with the tannin content. Significant differences in constituents of acorns are dependent of harvest time, storage period, and consequently from the metabolic condition of the acorn (depending upon, for example, factors relating to ripeness, dormancy or germination). Acorns have high fat and starch contents, but low protein amounts. In what concerns fat composition high contents of oleic, palmitic and linoleic acids were described. Acorns have a considerable amount of antioxidants, but show different behavior with thermal treatment [4]. All of these data encourage the idea of using acorns as a potential sustainable food resource, with positive economical impact.

By studying the nutritional and phytochemical composition of autochthones acorns or its extracts, aiming their application as a food ingredient, we expect to obtain data that support the valorization of this by-product. This approach wishes to answer to food security without forgetting the environmental and sustainable impacts.

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