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EFFECT OF FERMENTATION ON THE CHEMICAL PROFILE OF THE FRUITS AND SAP OF PLANT AND FUNGI NATIVE SPECIES OF CENTRAL CHILE AND ITS RELATIONSHIP WITH ANTIOXIDANT CAPACITY AND PHARMACOLOGICAL ACTIVITIES ASSOCIATED WITH METABOLIC SYNDROME

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The fruits, saps, and bulbs of native Chilean plants and fungi have been traditionally used by pre-Hispanic cultures for their medicinal and nutritional benefits. They are used in the production of jams, syrups, and fermented beverages. This research aimed to determine the chemical profile (using HPLC-DAD and UPLC-MS, along with TAC, TFC, and TPC analyses) of five species (*Schinus areira* L., *S. latifolia* (Gill. ex Lindl.) Engler, and *S. polygama* (Cav.) Cabrera [Anacardiaceae], *Jubaea chilensis* (Molina) Baill. [Arecaceae], and *Cyttaria espinosae* Lloyd [Cyttariaceae]) before and after fermentation with *Saccharomyces cerevisiae* EC1118, also assessing their antioxidant capacity (*in vitro*: DPPH, FRAP, CUPRAC, ABTS, and ORAC; and cellular antioxidant capacity assays), cytotoxicity (HUVEC and HepG2 cell lines), and their impact on digestive enzymes related to metabolic syndrome (α-glucosidase, α-amylase, and pancreatic lipase). The results showed that fermentation significantly increased TAC, TFC, and TPC values, improved DPPH, FRAP, CUPRAC, ABTS, and ORAC values, and inhibited ROS. The extract did not exhibit cytotoxicity in non-tumor HUVEC cells (IC_{50} > 100 µg/mL) and showed antiproliferative activity against HepG2 and MCF-7 cell lines. Enzymatic inhibition was moderate. These findings emphasize the bioactive potential of traditional fermented beverages made from Chilean native species and highlight their importance in nutritional and pharmacological uses.

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