

Overview of fermentation process: structurefunction relationship on protein quality and nonnutritive compounds of plant-based proteins and carbohydrates

ABSTRACT

Demands for high nutritional value-added food products and plant-based proteins have increased over the last decade, in line with the growth of the human population and consumer health awareness. The quality of the plant-based proteins depends on their digestibility, amino acid content, and residues of non-nutritive compounds, such as phenolic compounds, anti-nutritional compounds, antioxidants, and saponins. The presence of these non-nutritive compounds could have detrimental effects on the quality of the proteins. One of the solutions to address these shortcomings of plant-based proteins is fermentation, whereby enzymes that present naturally in microorganisms used during fermentation are responsible for the cleavage of the bonds between proteins and non-nutritive compounds. This mechanism has pronounced effects on the non-nutritive compounds, resulting in the enhancement of protein digestibility and functional properties of plant-based proteins. We assert that the types of plant-based proteins and microorganisms used during fermentation must be carefully addressed to truly enhance the quality, functional properties, and health functionalities of plant-based proteins.