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TAL 797 – Seminary

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INFLUENCE OF THERMAL MODIFICATION ON THE FUNCTIONALITIES OF PLANT PROTEINS

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Level: (x) MS () PhD"

In the past, only animal-based proteins (meat, eggs, milk, and blood) and some plant-based proteins were commonly used. However, due to restrictions on the consumption of diets rich in animal-based products, the market has been exploring new protein sources to meet consumer demands, based on the diversification of protein sources and functions to ensure food safety and the development of new products.

The protein market is currently expanding in the food industry. A growth rate of 9.1% in consumption is estimated from 2020 to 2027. Beans, lentils, and peas are gaining visibility due to their hypoallergenic and nutritional characteristics, as well as their affordability. The global production of legumes is 89 million tons/year, and in Brazil, annual bean production is expected to reach 3.1 million tons.

Despite the growing interest in plant-based proteins due to their sustainable origins, low cost, and health benefits, the majority of them have limited functionalities due to their low solubility in aqueous media and sensitivity to changes in pH, salt concentration, and temperature. Therefore, modifications have been studied to improve their technological properties and, consequently, their applications in the industry.

When food is subjected to thermal treatment, macromolecules such as starch, proteins, and lipids undergo structural and functional changes, and the new conformation affects the sensory, nutritional, and quality characteristics, as well as the shelf life of the final

product. By understanding these modifications, it is possible to study new formulations and develop products with the desired functionalities.

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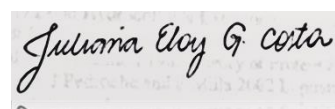
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