



TAL 797 – Seminar

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BIOACTIVE PEPTIDES OF PLANT ORIGIN: EXTRACTION, IDENTIFICATION, HEALTH BENEFITS AND APPLICATIONS

D.S. student: Caroline Woelffel Silva
Advisor: Prof. Frederico Barros (DTA)

Due to population growth, global meat consumption, demographic changes, and the popularity of diets that are high in protein, the demand for protein is increasing, and the recommendation is for countries to reduce protein intake from meat and dairy products and adopt a dietary policy consisting mainly of fruits, vegetables, whole grains, and plant-based proteins such as soy, beans, and legumes. Proteins of plant origin have great technological properties and have already been used in the production of food for human consumption. There is a trend in the search for new plant sources that have demonstrated potential for the production of a protein of high nutritional and technological quality. Moreover, protein hydrolysates are the product of protein hydrolysis and have been widely used in food products, since this process not only improves the physicochemical properties of proteins, such as solubility but also leads to the generation of bioactive peptides (BP), which are protein fragments with a positive impact on the body's functions or conditions. Hydrolysis by digestive enzymes or commercial proteolytic enzymes and microbial fermentation are the most common methods for obtaining peptides. These exert several physiological roles bringing health benefits, such as lowering blood pressure, high antioxidant activity, antibacterial, anti-inflammatory, antidiabetic and antimicrobial effects, and inhibition of cholesterol synthesis. The diverse roles of bioactive peptides make them interesting both for the development of therapeutic agents, due to their physiological functions, and for the food industry, due to their technological potential, and can assist in the development of plant-based products such as beverages, cheeses, and meat product alternatives.

Keywords: bioactive peptides, plant-based, protein.

References

- ASHAOLU, T. J. Applications of soy protein hydrolysates in the emerging functional foods: a review. **International Journal of Food Science and Technology**, v. 55, n. 2, p. 421–428, 2020.
- AURSUWANNA, T. et al. Investigating the cellular antioxidant and anti-inflammatory effects of the novel peptides in lingzhi mushrooms. **Heliyon**, v. 8, n. January, p. e11067, 2022.
- BHAT, Z. F.; KUMAR, S.; BHAT, H. F. Bioactive peptides of animal origin : a review. v. 52, n. September, p. 5377–5392, 2015.
- JIA, L. et al. Bioactive peptides from foods: production, function, and application. **Food & Function**, v. 12, n. August, p. 7108–7125, 2021.
- KANEKO, K. Appetite regulation by plant-derived bioactive peptides for promoting health. **Peptides**, v. 144, n. May, p. 170608, 2021.
- KAUR, A. et al. Recently isolated food-derived antihypertensive hydrolysates and peptides : A review. **Food Chemistry**, v. 346, n. November 2020, p. 128719, 2021.
- TKACZEWSKA, J. Peptides and protein hydrolysates as food preservatives and bioactive components of edible films and coatings - A review. **Trends in Food Science and Technology**, v. 106, p. 298–311, 2020.
- WILLETT, W. et al. The Lancet Commissions Food in the Anthropocene : the EAT – Lancet Commission on healthy diets from sustainable food systems. **The Lancet Commissions**, v. 393, n. 2, p. 447–492, 2019.

Advisor

Student