

Role and Properties of Proteins and Peptides in Foods

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1. Introduction

For many years, proteins and peptides have been attracting scientists' attention as two of the most important classes of food components. According to the scientific reports, proteins are valuable ingredients due to their nutritional value, impact on physicochemical and functional properties of food products, and bioactivity resulting from the presence of bioactive peptides. The dark side of proteins derived from foods is their allergenicity. New sources of proteins, as well as modification of their properties during processing, may improve their physicochemical and functional properties and reduce their allergenicity. Denaturation, proteolysis, and heat-induced chemical modifications of proteins are hot topics at present. In turn, research on peptides is focused on discovery of their novel bioactivities and resources.

The Special Issue, "Role and Properties of Proteins and Peptides in Foods" [1], covers a selection of recent research articles, short communications, and reviews concerning proteins and peptides in food, including practical applications, new perspectives, and challenges.

2. Content of the Special Issue

The Special Issue includes four original articles and one review. The published papers present various aspects of properties and potential applications of proteins and products of their hydrolysis in foods.

Bleakley and Hayes [2] have described functional properties (the water and oil holding capacity, foaming and emulsifying ability, stability, water activity, and solubility) of proteins from *Spirulina platensis* and *Isochrysis galbana* and biological activity of their hydrolysates. Proteins revealed promising oil-holding capacity and foam stability, but poor emulsifying capacity. In turn, their hydrolysates showed significant inhibition of angiotensin-converting enzyme (EC 3.4.15.1) and renin (EC 3.4.23.15).

Kiełczewska et al. [3] have published an article concerning the influence of high-pressure treatment and skimming on the properties of caprine milk proteins. The high-pressure treatment decreased the content of non-casein nitrogen and soluble whey proteins, whereas skimming decreased the content of nitrogen compounds, with the decrease being more pronounced in the HP-treated milk. Pressure treatment and skimming had no influence on the proportions of particular casein fractions and whey proteins. Increasing pressure caused affected the product's color, especially in the skimmed milk.

Heres and coworkers [4] have published an article describing the mechanism of interactions of dipeptides from dry cured ham with Metabotropic Glutamate Receptor (mGluR), responsible for umami taste. Molecular docking provided information about receptor amino acid residues involved in interactions with dipeptides.

Heffernan et al. [5] investigated the antioxidant and immunomodulatory potential of blue whiting soluble protein hydrolysates and their simulated gastrointestinal digests. Hydrolysates induced immunostimulating effects in lipopolysaccharide (LPS)-activated RAW264.7 macrophages. They also exhibited ferric reducing antioxidant power and oxygen radical absorbance capacity.



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Bouroutzika et al. [6] have highlighted the applicability of proteomics methods in examining the fate of cheese proteins and peptides during ripening, identifying bioactive peptides as well as detecting cheese authentication. The review focuses on Mediterranean cheeses.

We thank the authors for their contributions and encourage interested readers to refer to the articles published in the Special Issue, “Role and Properties of Proteins and Peptides in Foods” [1].

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