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Exploration of rice protein hydrolysates and peptides with special reference to antioxidant potential: Computational derived approaches for bio-activity determination

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Abstract

Background

Rice processing by-products derived proteins have been well acknowledged as rich sources of structurally diverse compounds (especially proteins) possess various health-related benefits along with a great therapeutic potential for the treatment and prevention of various diseases.

Scope and approach

In this paper, we have reviewed and explored the possibilities for adapting the sustainable valorisation of rice processing by-products to generate bioactive hydrolysates and peptides for food and biotechnological industries. The role of computational derived approaches for the production and applications of bioactive hydrolysates and peptides from the parent protein has also been explored.

Key findings and conclusions

Based on the emerging evidence of potential health benefits, the antioxidant potential of rice protein hydrolysate and peptides has been reviewed. The present review mainly highlights the recent research on rice proteins derived bioactive compounds for food and biotechnological applications using computational derived approaches with special reference to antioxidant activity. The safety, bioavailability and technological problems (towards the incorporation into food products) to deliver the bioactive peptides on the specific target has been discussed. The major opportunities and challenges are discussed for inspiring researchers/industries to investigate the critical problems that are responsible for preventing the utilization of these approaches for the development of functional food and nutraceutical products.

Keywords: Rice processing by-products; protein hydrolysates; computational approaches; bioactive rice peptides; functional food products