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Functionalization of legume proteins using high pressure processing: Effect on technofunctional properties and digestibility of legume proteins

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Highlights

- Recent developments of high pressure processed legume proteins are discussed.
- Legume proteins display promising techno-functional, palatable and digestibility attributes.
- HPP can be potentially used to modulate the digestibility and rheological properties of plant based (legume) proteins.
- HPP treatment of legume proteins exhibits modification in structure and confrontation of protein.
- HPP modification of legume proteins addresses limitations and challenges for its application in the food industry.

Abstract

There is an increasing awareness and demand for a new plant-based protein food category in the market. Among different sources, protein derived from legumes are considered GRAS (generally recognized as safe) and used predominantly in the vegan diet. However, these proteins are hard to digest and require functionalization like high-pressure processing to make them more palatable and digestible. High-pressure processing or high hydrostatic pressure processing (HPP) is one of the emerging technologies to process legume proteins with a marginal impact on its sensorial, physical and nutritional properties. Such functionalized legume proteins could modulate the rheological and functional properties like emulsification potential, foaming capacity, surface hydrophobicity and water holding capacity. This could be said as similar to meat and widens the scope of commercialization of plant-based meat analogs. This review aims to summarize the recent findings in the application of high-pressure techniques; especially on different proteins derived from legume