Effects of high hydrostatic pressure and its holding time on protein structure of liquid egg product

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The use of high hydrostatic pressures (HHP) for food processing is finding increased application within the food industry. One of the advantages of this technology is that because it does not use heat, sensory, and nutritional attributes of the product remain virtually unaffected, thus yielding products with better quality than those processed traditional methods. In addition to extending shelf-life of food products, HHP can modify functional properties of components such as proteins.

In our study liquid egg white (LEW), liquid whole egg (LWE) and liquid egg yolk (LEY) were treated at 400 MPa applied different holding times (1, 3, 5 7 and 10 minutes). Denaturation of egg proteins was determined by calorimetric methods (differential scanning calorimetry, DSC).

Our results showed, the longer holding time was used, the greater denaturation of proteins in LEW was proved, by contrast LEY showed slightly changes in protein structures. LWE showed the smallest decreasing in denaturised protein content. Our study pointed out there may be a protective role of egg yolk's components to proteins which have to verified by applications of other methods.