EFFECT OF HIGH PRESSURE PROCESSING ON HEAT-INDUCED GELLING CAPACITY OF BLUE CRAB (*CALLINECTES SAPIDUS*) MEAT

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ABSTRACT

There has been increasing use of High pressure processing (HPP) in the fishery industry since this technology facilitates shellfish shucking. Nevertheless, there is limited information about the effect of HPP on protein functional properties of some shellfish. In the case of blue crab meat it is important to study the effect of HPP on protein functional properties such as gelling capacity in order to optimize processing parameters for the preparation of high-quality restructured products. This paper reports the development of a HPP process in blue crab (*Callinectes sapidus*) meat (100, 300 and 600 MPa/ 5 min 40°C/30 min + 90°C/ 20 min) prior to thermal gelling for the preparation of crab meat gels.

HPP treatment resulted in crab meat gels with a lighter and reddish colour as compared to the control. HPP at 600 MPa induced the formation of high molecular aggregates from the denaturation-aggregation of myosin heavy chain. Pressurization at 100 MPa promoted the shift of α -helix structures to β -sheet and β -turn as compared with the other pressure levels. TPA values were higher in gels made at 100 MPa than at 300 or 600 MPa. Low pressure levels, then, increased the heat-induced gelling capacity of crab meat, improving the texture through modification of its protein structure.

The use of HPP on blue crab for hand-picking of the meat followed by heat-induced gelling of the pressurized meat resulted in high-quality gels. So, these gels could provide a base for new seafood analogues although studies on protein digestibility are required to properly understand the effect of HPP on crab meat and crab meat gels.

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