

High pressure processing and heat treatment: Safety and functional properties of liquid egg white

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HHP technology is one of the most promising nonthermal processes. Several food products like sliced ham, or fruit juices are some of the products currently available on the market.

Samples prepared from homogenized liquid egg white (LEW) were treated in different combinations of high hydrostatic pressure (HHP) and heat treatments. Single HHP treatments at 350 MPa and 450 MPa, 5 min or combined treatments: first: pasteurization: 57°C, 7 min, or long-term heat treatment: 53°C, 6 hours followed by HHP treatment: 350 MPa, 5 min. were applied.

Microbiological load of LEW was examined for confirmation of effectiveness of every treatment. Our results showed that even at 350 MPa pressure treatment decrease the viable cell count of samples. Further microbe cell count went down in egg white samples at 350 MPa combined with both heat treatments below the impact level. After measurement of colour of samples colour difference ΔE_{ab}^* was counted to compare colour of samples to untreated control. The statistical analyse of colour was carried out with one way ANOVA and post hoc tests (SPSS 20.0 software, $\alpha=0,05$). Changes affected by treatments were significant in case of all colour factors. Post hoc test showed that L* and b* comparing to control were significant changed by 350 MPa and 350 MPa combined with pasteurization, but a* was significant influenced by 350 MPa and pasteurization only.