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Sea tangle powder and high-pressure processing as an alternative to phosphate in emulsion-type sausage

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Recently, consumer's perception of healthy foods is growing, thus demand for natural additives or synthetic additive-free is increasing. However, there were no effective alternative sources to phosphate, which is associated with water holding capacity (WHC) and texture in meat industry. Studies regarding natural alternatives to phosphate are also limited. Therefore, the aim of this study is to find optimum condition to substitute phosphate in emulsion-type sausage using sea tangle powder (STP) and high pressure (HP) treatment. The sausages with STP (1.5 and 3%) had similar cooking loss to sausages with 0.2% sodium pyrophosphate (PC), without a negative effect on overall acceptability, except for texture property, which was inferior to PC ($P < 0.05$). Instrumental texture properties of sausages containing 3% STP were improved by HP (100 MPa) treatment. Furthermore, the sausages treated with a combination of STP and HP showed similar or greater antioxidant and antimicrobial effect than that of PC. Therefore, a combination treatment of STP and HP could be used effectively as an alternative to phosphate in emulsion-type sausages because of their similar water-holding capacity and instrumental hardness and greater inhibition ability against lipid oxidation and bacterial growth compared with those of PC.

Biography

Cheorun Jo is currently a Professor of Agricultural Biotechnology at Seoul National University, South Korea. He is a Muscle Food Scientist and his research interest is the production of value-added high quality products of animal origin. He is involved in studies of the relationship between genetics and meat quality characteristics of native livestock breeds. He is also an expert of non-thermal processing for improving safety and functionality of animal origin food.

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