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Effect of Sub Supercritical CO2 Processing on Microflora and Shelf Life Tempe

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Abstract : Tempe composes of not only molds but also bacteria and yeasts. The structure of microorganisms needs to be in balance number in order the tempe to be an acceptable quality for an extended time. Sub supercritical carbon dioxide can be a promising preservation method for tempe as it induces microbial inactivation avoiding alterations of its quality attributes. Fresh tempe were processed using supercritical and sub supercritical CO2 for a defined holding times, then the growth ability of molds and bacteria were analyzed. The results showed that the supercritical CO2 processing for 5 minutes reduced the number of bacteria and molds to 0.30 log cycle and 1.17 log cycles, respectively. In addition, sub supercritical CO2 processing for 20 minutes had fungicidal effect against mold tempe; whereas, the sub supercritical CO2 for 10 minutes had reducing effect against bacteria tempe, and had fungistatic affect against mold tempe. It suggested that sub-supercritical CO2 processing for 10 min could be useful alternative technique for preservation of tempe.

Keywords : tempe, sub supercritical CO2, fungistatic effect, preservation
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