World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:11, No:01, 2017

Increasing Redness and Microbial Stability of Low Nitrite Chicken Sausage by Encapsulated Tomato Pomace Extract

Authors : Bung-Orn Hemung, Nachayut Chanshotigul, Koo Bok Chin

Abstract : Tomato pomace (TP) is the waste from tomato processing plants and its utilization as food ingredient may provide sustainable industry by reducing waste. TP was extracted by ethanol using microwave-assisted method at 180W for 90s. The ethanol was evaporated out, and an extract was encapsulated with maltodextrin (1:10) by spray drying to obtain an encapsulated TP extract (ETPE). The redness (a value) of ETPE powder was 6.5±0.05, and it was used as natural ingredient in the low-nitrite chicken sausage. Chicken emulsion sausage was prepared at 25 mg/kg of nitrite for being control. Effect of ETPE (1.0%) was evaluated along with the reference (150 mg/kg of nitrite without ETPE). The redness (a value) of sausage with ETPE was found at 6.8±0.03, which was higher than those of reference and control, which were at 4.8±.022 and 5.1±0.15, respectively. However, hardness, expressible moisture content and cooking yield values were reduced slightly. During storage at 10 °C in the air packed condition for 1 week, changes in color, pH, redness, and thiobarbituric acid reactive substances value were not significantly different. However, total microbial count of sausage samples with ETPE was lower than control for a 1 log cycle, suggesting microbial stability. Therefore, the addition of ETPE could be an alternative strategy to utilize TP as a natural colorant and antimicrobial agent to extend the shelf life of low-nitrite chicken sausage.

Keywords : antimicrobial ingredient, chicken sausage, ethanolic extract, low-nitrite sausage, tomato pomace
Conference Title : ICGFS 2017 : International Conference on Global Food Security
Conference Location : Singapore, Singapore
Conference Dates : January 08-09, 2017