Title Design and Development of Meat Quality Improving Machine

Author Panmanas Sirisomboon, Wasu Udompetaikul, Yaowaluk Suraphantapisit

Citation Proceedings: Abstract Summary, International Conference on Agricultural, Food and Biological Engineering & Post Harvest/Production Technology, Sofitel Raja Orchid Hotel, Khon Kaen, Thailand, 21-24 January 2007. 204 p.

Keywords Meat quality; Marination; Tenderness; Toughness; firmness; Cooking loss

Abstract

This study was to develop a meat quality improving machine in order to decrease duration of marination to make meats soften, absorb more gravy and have less cooking loss. The meat container diameter was 32 cm with the height of 32 cm. The capacity of the machine was 3-5 kg meat for a 30 minute marination time. An experiment was designed using a combination of relative vacuum pressures in the container of 0,150, 300, 400 mmHg below the atmospheric pressure, and rotational speeds of the container at 5, 10, 15 rpm. The best condition of the machine for effectiveness was at 400 mmHg and speed of 15 rpm/min. The tenderness (maximum shear force), toughness (energy absorption until maximum shear force), firmness, and cooking loss, were 34.296 N, 145.54 N mm, 2.03 N/mm, and 35.13%, respectively. For manual marination in 30 minutes, tenderness, toughness, firmness, and cooking loss, were 59.414 N, 273.768 N mm, 3.73 N/mm, and 34.798%, respectively. The taste panel was performed using 10 participants, and the results showed that the meats which were marinated by the machine were more tender than those of manual marination.