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Applications of plasma mixed with gases on ground pork for microbial reduction

Napaporn Deesanam, Ni-orn Chomsri and Chanchai Dechthummarong
University of Technology Lanna, Thailand

Over years, food safety concern is generally an important issue for the food sector. Meat is usually a sort of food which microorganisms can grow and cause spoilage. Elimination of microbial contamination on fresh meat is critically vital for consumer food safety. Plasma is an innovation of high voltage application. Plasma creates free radicals, discharges and various gases, e.g. ozone, oxygen, hydrogen, nitrogen, helium which affects microbial inhibition. Many reports mentioned that high voltage plasma was used to inhibit spoilage microorganisms in order to preserve food for nutritive value and shelf life extending. This work focuses on utilization of plasma mixed with gases as an innovation of non-thermal processing for microbial inactivation

of ground pork. The non-thermal plasma mixed with oxygen and nitrogen at 10 kV for 0, 5, 10, 15, 20, 25 and 30 min was performed in this study. The ground pork samples treated with different plasma conditions were determined for physicochemical, microbiological and organoleptic quality. Results revealed that color values of ground pork treated with plasma varied depending on treatments. Ground pork treated with plasma had lower population of microorganisms. In addition, the cooked meat products obtained from pork treated with plasma were rated at the average level of like moderately for overall acceptance ($p>0.05$).

naphaporn.rat@kmutt.ac.th

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