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Effective method to prevent the microbiological contamination in meat and meat products throughout the lifecycle is the most important for consumer trust and safety. Cold plasma is a rapid, effective nonthermal technology that can be applied for food products. Many studies reported recently have shown that cold plasma reduces the number of pathogens in food products. The development of in-package plasma system with a flexible thin-layer electrode inside the sealed package also showed promising application in industry for the use of this technology in broad way. In addition, the fact that nitrogen oxides in the gas-phase discharge can be diffused and dissolved in liquids after plasma treatment introduced the concept of plasma curing for processed meat. Emulsion-type sausage and injected ham using the plasma-treated water had similar properties to those cured with sodium nitrite or natural nitrite source from modified vegetables. Using the results, we also can add nitrite in ethanolic extract from *P. frutescens*, which did not contain nitrite naturally but had several important beneficial biological activities for human. Then, the direct curing was developed by plasma treatment for meat batter during mixing process. Recently, to avoid temperature increase during the plasma treatment during mixing, the indirect plasma system was developed with a cooling system to reduce the temperature in plasma generation chamber. In the present presentation, a series of research results in development of cold plasma technology on food safety enhancement and processed meat manufacturing will be introduced with brief summary of the mechanism and the direction of future research.

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