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Application Perspective of Plasma Science and Technology for Food and Agriculture WONHO CHOE, Korea Adv Inst of Sci Tech , CHEO-RUN JO, Seoul National University, YOUBONG LIM, Plasmapp, SUK-JAE YOO, NFRI — The plasma science and technology can bring about innovations in agriculture and food industries using the plasma's unique properties. As a part of the '*Plasma Farming*', a comprehensive application of the plasma to the entire agricultural stages from farm to table, the application of atmospheric pressure plasma (APP) on the food industry is promising. The APP can bring highly ensured safety and extended shelf-life, which would ultimately provide a comprehensive solution to challenges in the food industry. In this presentation, example-based discussions will be made particularly for the food safety, the food processing, and the novel smart plasma packaging. Food safety is undoubtedly of the highest priority for both food industry and consumers, and the APP can be a promising means. Several examples of antimicrobial effects of the plasma treatments will be discussed to show the plasma's role as an excellent non-thermal sterilization means. In addition, the developed APP packaging technology can inactivate pathogens in packaged food by using a flexible pouch type plasma source, in which reactive oxygen and nitrogen species are produced from the ambient air inside the pouch. Another creative application of the APP is plasma treated water, which can be used as an alternative nitrite source—the most important curing agent of processed meat—along with the direct use of the plasma in the processed meat manufacturing. The requirements and conditions for developing appropriate plasma sources will also be discussed.

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