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**Analysis and utilization of plasma treated water for food and agricultural interest** SANGHOO PARK, YOUBONG LIM, JOO YOUNG PARK, WONHO CHOE, Korea Advanced Institute of Science and Technology, HYUN-JOO KIM, HAE IN YONG, CHEORUN JO, Seoul National University, SAMOOEL JUNG, Chungnam National University — Attention on aqueous chemical species produced in plasma-treated solutions through plasma-liquid interactions has been increased because of its strong relation to bio/medical and food applications. The long-lived and reactive oxygen and nitrogen species such as hydrogen peroxide, ozone, superoxide anion, and oxyacids play a crucial role in those applications. The plasma treatment brings about absorption of these species into the target liquid and also induces changes in liquid characteristics and composition via photolysis by plasma UV emission and post-discharge reactions. In this presentation, we discuss the result of our investigation of the chemical properties related to the two main oxyacids,  $\text{HNO}_2$  and  $\text{HNO}_3$ , in plasma treated water (PTW). Water was treated in close proximity by our SDBD system developed specifically to meet the application requirements. The chemical properties of the solution varied gradually over the treatment time and storage time. Here we report the result of our experiment, theoretical analysis, and their consistency. Furthermore, the dependence of the nitrite ion production yield on the dissipated power, treatment time, and dielectric material will be discussed. Based on the revealed fundamental characteristics, the utilization of PTW in the meat curing process as one of the nitrite sources will be briefly demonstrated. In terms of sausage quality, there were no noticeable effects of PTW on the total aerobic bacteria counts, color, and peroxide values of sausages compared with those using celery powder and sodium nitrite.

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