The study of residual pesticides removal in fresh food using the plasma reactive species

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Atmospheric low-temperature plasma has various characteristics, and one of the most important feature is that it makes various reactive species. Among the plasma reactive species, ROS(Reactive Oxygen Species) is the powerful oxidizer. We know that Ozone and OH radicals have excellent pesticide reduction effects through the previous studies. (Reynoldset al., 1989, Benitez et al., 2002; Ong et al., 1996) In this study, we investigated whether ROS, plasma reactive species was effective in removing residual pesticides. Surface-DBD(Dielectric Barrier Discharge) sources were used to generate ROS through atmospheric pressure plasma discharge. Regardless of the chemical composition or purpose of use, pesticides were selected for the most commonly used pesticides. Fresh foods containing residual pesticides on the surface were placed in plasma condition for 10 min and kept for 1 day. From this experiment, it was found that the residual pesticide was also removed by the plasma reactive species, ROS. These pesticides were classified as ozone sensitive species in the previous studies and showed more than 80% pesticide removal rate under plasma treatment conditions.

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