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Pesticide reduction from food surface using a micro plasma generating system

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In the present study, a micro-plasma device was usedto reduce pesticides from the surface of food stuffs. Pesticide free food items chosen in this study were perilla leaf, tomato, broccoli and blue berry. To evaluate the removal efficiency of pesticides different washing methods were followed such as soaking with water, washing with bubbling water, washing with plasma treated water and washing with chlorine water. 2 mL of 2000 ppm pesticide samples namely, diazinone and chlorpyrifos wereindividuality inoculated on food surface and was air dried for 2h before treated with plasma. Plasma treated water was used in two different manners one is plasma treated water with bubblingthe other one is aerosolized plasma treated water. The removal efficiency of pesticides from food surface were studied using HPLC. Washing with plasma treated water, aerosolized plasma treated water and chlorine water shows minimum 72% to maximum 87 % reduction for 4 min treatment irrespective tothe types of food items and the types of pesticides sample, in case of soaking and bubbling the reduction is 8% to 48%. Washing with plasma treated water, aerosolized plasma treated water and chlorine water shows somewhat similar reduction ability that is significantly higher comparing to the soaking and bubbling washing system. The temperature effect of the washing systems were also evaluated, decreasing temperature shows higher reduction in case of washing with plasma and aerosolized plasma treated water, whereas an opposite trend was observed for the washing with chlorine water.

Biography

Muhammad Saiful Islam Khan has completed his PhD at the age of 37 years from Korea University of Science and Technology and postdoctoral studies from Korea Food Research Institute. He is working as an associate Professor with Akfa University, Uzbekistan. He has published more than 15 papers. Professor Yun-JI Kim completed her PhD studies from Utah State University in 1991. She has published more than 50 journal articles. She is food hygiene specialist and working withwith Korea Food research Institute in the capacity of Principal Researcher.