World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:11, No:10, 2017

High-Quality Flavor of Black Belly Pork under Lightning Corona Discharge Using Tesla Coil for High Voltage Education

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Abstract : The Tesla coil is an electrical resonant transformer circuit designed by inventor Nikola Tesla in 1891. It is used to produce high voltage, low current and high frequency alternating current electricity. Tesla experimented with a number of different configurations consisting of two or sometimes three coupled resonant electric circuits. This paper focuses on development and high voltage education to apply a Tesla coil to cuisine for high quality flavor and taste conditioning as well as high voltage education under 50 kV corona discharge. The result revealed that the velocity of roasted black belly pork by Tesla coil is faster than that of conventional methods such as hot grill and steel plate etc. depending on applied voltage level and applied voltage time. Besides, carbohydrate and crude protein increased, whereas natrium and saccharides significantly decreased after lightning surge by Tesla coil. This idea will be useful in high voltage education and high voltage application.

Keywords : corona discharge, Tesla coil, high voltage application, high voltage education
Conference Title : ICAHVE 2017 : International Conference on Applications of High Voltage Engineering
Conference Location : Bangkok, Thailand
Conference Dates : October 26-27, 2017