Investigation of the relationship between total viable count and electrical conductivity during meat

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ABSTRACT

The source of meat for the animal organization .it contains a lot of water, protein, amino acids and organic substances. it is vulnerably by microorganism contamination that will be spoilage. especially at room temperature and moisture that microorganism growth rapidly. resulting in the value of meat down and not to diet. However, the traditional microbiological testing, complicated and time consuming step, simple procedures can not provide immediate decontamination information. In this study, meat sample were put into the different environment , that is room temperature , moisture and cold temperature for 72 hours. The sample measure by electrical conductivity and the microorganism test then it observe the phenomenon of spoilage at every 12 hour. using statistical regression methods to understand electrical conductivity and total viable count were correlated. The results show microorganisms growth that resulting in significant spoilage the electrical conductivity also increased at room temperature environment. in moist environment is good for microorganisms growth that increase the process of spoilage then electrical conductivity measure result also significant increase. in cold temperature environment the microbial growth is inhibited that no significant spoilage and the electrical conductivity have no significant change. By regression analysis showed that a variety of environments, electrical conductivity and total viable count showed some correlation, especially in the storage at 24~48 hour. the electrical conductivity have significant increase then microorganisms increase over the food safety standards 105 (CFU / g).and the two are highly related (r2 = 0.9). it provide when the food reached the stage of spoilage, electrical conductivity will increase, This is due to microbial growth and reproduction, destruction of food structure, resulting in significant increase in food water mobility. It have develop that use of electrical conductivity and total viable count appears to be related to electrical conductivity as a tool to measure on meat, meat can be understand that the degree of microorganisms contamination.

Keywords : electrical conductivity、total viable count、water mobility、meat

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