

ABSTRACT

Health is a very important thing in human life. Some factors that affect human health are physical activity and food intake as the most decisive factor. One of the products is food derived from beef. The material included as the most favorite foodstuff among consumer because of its nutrition. However, need to be understood that generally in any food material is easily damaged, because it does not hold a long-time stored or perishable. The existence of food resistance usually was influenced by storage time, including storage method and freshness conditions.

Some radiation technique performed, such as gamma radiation, X-ray, and infrared to determine the level of reduction in physical beef quality. The main difference of the techniques because of the radiation wavelength exposure. Near infrared spectroscopy is one kind of irradiation by using smaller wavelengths. Near infrared spectroscopy can perform good result from its irradiation. Image acquisition results in the form of digital data 8 bits at each base color RGB (Red, Green, Blue). Input image could be converted into the HSV (Hue, Saturation, Value) color space to see the difference of its brightness.

This classification process of beef freshness through image acquisition by using digital camera, and then pre-process the

image, and extracting its feature by using color analysis and compare it with multiwavelet transformation. The last process is the classification process by using artificial neural network Backpropagation. This system can perform an 75% accuracy by using NN classification with computation time in 10.683 second, while the best accuracy from using backpropagation is 71,4286% with the computation time 15,800086 second.

Keywords: Beef freshness, Color analysis, Multi-wavelet transformation, Back-Propagation, Nearest Neighbor