

QUALITY ASSESSMENT OF BROILER MEAT USING COMPUTER VISION TECHNOLOGY

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ABSTRACT

Introduction: Broiler meat is a nutritionally valuable foodstuff for its low content of fat in which there are more desirable unsaturated fatty acids than other types of meat. It is well accepted to all communities of people. Meat quality usually depends on physical, chemical and biological properties. In food production, much information applying to the material or final product are obtained by visual evaluation. Human visual inspection and chemical or biological determination experiment for quality evaluation of broiler meat is time-consuming, sample destructive and tedious whereas computer vision technology is a rapid, non-destructive, economic and objective inspection technique, which has expanded into many diverse industries. Computer vision technology may provide an alternative method for assessing the quality attributes by establishing correlation between image value and chemical composition of broiler meat.

Methods: Images were captured from *pectoralis major* muscle in broiler at 24 hours post-mortem. The software Matlab (R2015a) has been used for image analysis. The physicochemical, proximate, biochemical and microbiological tests were followed to determine different reference values of the sample. Reference color values were measured with the help of a colorimeter. All determination was done in triplicate and the mean value was reported. Data analysis was carried

out using the programme Statgraphics Centurion XV.I. Calibration and validation model were fitted using the software Unscrambler X version 9.7.

Results:

A higher correlation was found in pH ($r=0.64$) with L^* value obtained from imaging analysis and cooking loss ($r=0.60$) with 'a*' value obtained from imaging analysis and the highest calibration and prediction accuracy was found in pH ($R^2_c =0.64$, $R^2_p=0.56$) in broiler breast meat.

Conclusion:

Results of this work indicate the probability of using computer vision technology in predicting quality of meats in the meat processing plant.