

**Detecting Beef and Pork Adulteration using Principal Component Analysis**

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***Abstract***

Principal Component Analysis (PCA) is proposed for the automatic detection of beef and pork adulteration images in this paper. The method is used for the feature extraction phase. Two database resources are used in the research. They are Kaggle database to obtain the beef and pork images and previous research by L. Handayani et al. to get the adulteration images. The images are divided into two processes that are training and testing. For the training process, this experiment was conducted on 100 images of beef, 100 images of pork, and 50 images of adulteration. Whereas for testing, this study used 25 images for each category. The proposed research requires three phases to obtain the detection result, i.e., the first phase is resizing images to 300x300 pixels for both the training and testing dataset. The second is implementing the proposed method to obtain the featured images. The last is the detection process of testing images using Mean Squared Error (MSE). The results of this research show that the PCA method is very effective for detecting beef and pork adulteration, reaching average accuracy values up to 96%.

*Keywords:* Meat detection; Principal component analysis (PCA); Mean squared error (MSE).