ABSTRACT

Indonesia is also one of the eighth largest tea producing countries in the world, therefore the quality and quality of the tea produced is of utmost concern from harvest to post-harvest. When the climate is in the dry season, the growth of tea leaves will be slower and make the picking rotation system backward from the specified day. This makes the picking rotation system sometimes inappropriate. In this study, tea leaves were divided into 3 classes, namely leaves that were ready to be harvested (ripe), leaves that would be harvested in the near future (half ripe) and leaves that were not yet ready to be harvested (immature). The stages in this research are image acquisition, resizing and segmentation, and image transformation to HSI *(Hue Saturation Intensity)* and HSV *(Hue Saturation Value) color features. Feature extraction by quantizing* HSI *and* HSV *colors. After obtaining the* HSI *and* HSV *feature values, the training image is classified using the Artificial Neural Network* (ANN) *method which will then be applied to the accuracy improvement method, namely Principal component analysis* (PCA) *and Linear Discriminant Analysis* (LDA). *Measurement and testing are carried out into 2 scenarios, in the first scenario using 90 training data, the other parameters use auto from mlpclassifer, training training data will be carried out 5 times. The second scenario is used to obtain test accuracy taken from test data with a total of 60 data, the other parameters use auto from mlpclassifer, the test accuracy is carried out 5 times. In this study, the accuracy of the* PCA *method was 72% and the* LDA *was 97%.*

Keywords: *Tea, Hue Saturation Intensity (HSI), Hue Saturation Value (HSV), Artificial Neural Network (ANN), Principal component analysis (PCA) dan Linear Discriminant Analysis (LDA)*