

ABSTRACT

Rice is one of the main food in Asia, especially Indonesia, with white rice being the most commonly consumed type. White rice varieties were chosen for this research because they are the most widely consumed. With the numerous varieties of white rice available in the market, consumers often face difficulties in determining their choice of variety due to similarities in color and shape. This study used five different white rice varieties as samples: Arborio, Basmati, Ipsala, Jasmine, and Karacadag. The data in this study was obtained from the Kaggle website with the title Rice Image Dataset. Since this research used image datasets, the Gray Level Co-Occurrence Matrix (GLCM) algorithm was appropriate for feature extraction. The GLCM algorithm can extract 5 features: Contrast, Dissimilarity, Correlation, Energy, and Homogeneity. The extraction process was performed by analyzing 4 different angles with a neighbor distance of 1 pixel. For the classification process, this research used the K-Nearest Neighbor (KNN) Machine Learning algorithm, known for its pattern recognition capabilities. In its application, there were 5 classes in the dataset with each class consisting of 2000 data points, making a total of 10000 images. 80% of the data was used as training data and 20% as testing data. The test results of the KNN algorithm showed high accuracy of 96.55%. This accuracy level indicates that the combination of GLCM feature extraction and KNN classification algorithm is very effective in distinguishing rice varieties based on visual characteristics.

Key Words : Rice, Feature, Extraction, Gray Level Co-Occurrence, K-Nearest Neighbor