ABSTRACT

Indonesia is one of the largest processing of gambung tea products. Gambung tea products produced with different types of tea. However, the quality of the product processing system has decreased because farmers are difficult to distinguish the types of production of tea leaves with superior tea leaves and still use manual processing procedures. It is known, gambung tea leaves has 11 types of clones. GMB tea leaves (1-11) are superior tea clones of the type assamica and sinensis from the research of the Tea and Quinine Research Center (PPTK). Therefore, technology is needed to recognize the types of tea leaves as an increase in product quality.

This research makes a classification by using the Convolutional Neural Network (CNN) method as a classification algorithm. Leaf image data classification process will be tested to 11 types of clone leaves by the number of dataset of 1100 data as well as augmentation of testing using the data for 4400 data. The LeNet-5 architecture will be used in the classification model testing.

Architectural testing was performed with Adam, SGD, RMSprop, and Adagrad optimizer parameters with comparative learning rate values of 0.1, 0.01, 0.001, and 0.0001. The classification process is obtained with an accuracy value of 94.55% with Adam optimizer parameter and the learning rate used of 0.001.

Keywords: GMB Tea Leaves, CNN, LeNet-5 Architecture.