ABSTRACT

Plant diseases become a problem as they can cause a decline in the quality and quantity of agricultural products and increase the total cost of damage. Plant diseases can be identified through the condition of the leaves. In modern times, there have been researches that classify diseases using images of plant leaves. The method used is Convolutional Neural Network (CNN).

This research proposes InceptionV3 as the CNN architecture. InceptionV3 is a CNN architecture proposed by Google that can train data with up to 1000 classes and over 1.4 million images. The dataset used in this research is obtained from kaggle.com and PlantVillage, consisting of 10,800 leaf images in .jpeg format.

The image classification is divided into 9 classes, including 2 classes for peppers, 3 classes for potatoes, and 4 classes for tomatoes. The evaluation metrics used are accuracy, sensitivity, precision, and F1 score. The best test result is achieved using SGD optimizer, learning rate of 0.001, batch size of 32, and epoch of 100, obtaining an accuracy rate of 91% and a loss of 0.2568, with precision, sensitivity (recall), and F1 score all at 91%.

Keywords: Plant diseases, InceptionV3, CNN.