

ABSTRACT

Mango leaves are leaf shapes that are arranged in a spiral and are easily susceptible to pests. Pests are one type of plant-disturbing micro-organisms. Pest attacks have a very bad impact on agricultural production, because they damage and reduce crop productivity for humans. Based on the problems presented, efforts are needed to deal with these mango leaf pests. The proper handling is by carrying out the classification with the Support Vector Machine-Radial Basis Function (SVM-RBF). SVM-RBF can help distinguish healthy leaves from unhealthy leaves. The data used for this research was obtained from the Mandelely Dataset 2020 years totaling 2800 data. The data presented is in the form of 4 class conditions from 3 pest classes and 1 healthy leaf. The data is divided into 70% training data and 30% testing data. Image data in training amounted to 490 per class and image data in testing amounted to 210 per class. The data designed and tested using a system obtained a good accuracy value. The design of this system was made through several stages including dataset input, preprocessing, modeling and model accuracy of more than equal to 50%. Then the system design will be generated from the preprocessing process in the form of normalization in this classification. The method used is a Support Vector Machine-Radial Basis Function (SVM-RBF) with C or cost type parameters. System testing is obtained from the preprocessing normalization process. In this normalization process, there is holdout validation on the splitted dataset prior to the modeling process, which later goes to the Confusion Matrix. The best accuracy results were obtained from the precision, recall and f1-score calculation conditions. It can be concluded that the calculation of accuracy, precision, recall and f1-score will later have an effect when determining scenarios. Scenarios C=1 to C=10 where the results of the accuracy of each of these scenarios produce an accuracy of 60%. Then scenario C=1 produces an accuracy of 57% lower than 60%.

Keywords: *Confusion Matrix, Leaf Pests, Mango Leaves, SVM-RBF.*