

ABSTRACT

Vannamei shrimp (Litopenaeus vannamei) is one of the leading fishery commodities in Indonesia with a high economic value. Kutawaru Village, located in Central Cilacap District, is one of the active farming areas due to its supportive geographic conditions. However, the cultivation process still faces challenges from diseases such as Enterocytozoon hepatopenaei (EHP) and Infectious Myonecrosis Virus (IMNV). Disease identification is still conducted manually through visual observation, which can lead to misdiagnosis and delayed treatment. This research aims to implement a digital image-based classification model to identify shrimp health using a Convolutional Neural Network (CNN) algorithm with the VGG16 architecture. The dataset consists of 900 shrimp images divided into three classes: healthy shrimp, EHP-infected shrimp, and IMNV-infected shrimp. The best model was obtained using the Adam optimizer with a learning rate of 0.0001. The evaluation results show that the model achieved 97.22% accuracy, precision, recall, and F1-score, with a follow-up testing accuracy of 90.00% where 27 images were correctly identified. This research demonstrates that the selection of appropriate parameter configurations plays an important role in improving the performance and effectiveness of the classification model.

Keywords: *Vannamei Shrimp Diseases, VGG16, Convolutional Neural Network (CNN), Deep Learning.*