Abstract
Avocados are a high-value fruit due to their flavor and nutritional value. In avocados, the degree of ripeness is an essential aspect as it affects sales. Unripe avocados are often rejected by consumers, which can lead to losses. Therefore, the ripeness selection process is important. This research aims to build a classification system that categorizes avocado ripeness into five levels using a Support Vector Machine. Color and texture feature extraction is performed to capture patterns of fruit ripeness. Feature extraction produces a huge number of features, so PCA is used. In this study, the model's hyperparameters were selected using Moth Flame Optimization. The proposed model achieved the best results using a polynomial kernel with an accuracy of 82.68%. Moth Flame Optimization improves the model's accuracy compared to the SVM model without optimization.

Keywords: support vector machine, classification, moth flame optimization, avocado ripeness