THE APPLICATION OF MULTILAYER PERCEPTRON ALGORITHM FOR HONEY TYPE CLASSIFICATION BASED ON RGB COLOR

RIDWAN HALIM
Informatics Study Program, Faculty of Science and Technology
University of Technology Yogyakarta
Jl. Ringroad Utara, Jombor, Sleman, Yogyakarta
E-mail: ridwaanhall.dev@gmail.com

ABSTRACT

Technological advancements have significantly modernized the agricultural industry. Distinguishing honey types with nearly identical colors presents a considerable challenge. However, differentiating between acacia honey and forest honey based on color is one of the simplest approaches to ensure product authenticity and quality. This study aims to develop a honey color classification model using the Multilayer Perceptron (MLP) algorithm. Image data were collected from various angles under natural lighting conditions. A total of ninety experiments were conducted using different parameter combinations, including data imbalance handling methods, dense layer configurations, and training settings. The results indicate that the MLP model, when optimized with Adaptive Synthetic Sampling (ADASYN) to address data imbalance, achieved a validation accuracy of 87.50%. This level of accuracy demonstrates the model's potential to support automation processes in the industry for reliable honey color classification.

Keywords: *Multilayer Perceptron, ADASYN, Acacia Honey, Forest Honey, Color Classification*