

INTISARI

PENGEMBANGAN MODEL KLASIFIKASI KULTIVAR MANGGA MENGUNAKAN *MACHINE LEARNING* BERBASIS DATA SPEKTROSKOPI *NEAR INFRARED*

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Identifikasi jenis kultivar pada buah mangga dapat dilakukan dengan metode tradisional seperti pengamatan pada morfologi buah dan juga bau dari buah yang akan diidentifikasi. Namun pengamatan tersebut tidaklah selalu akurat dikarenakan pengamatan tersebut sangat bergantung kepada kejelian dari orang yang melakukan identifikasi secara manual. Kekurangan tersebut berpotensi menimbulkan permasalahan saat buah mangga hendak dijual atau diolah. Untuk mengatasi hal tersebut perlu dilakukan proses identifikasi secara sistematis agar dapat diketahui kultivar buah mangga tanpa merusak buah mangga yang akan diidentifikasi. Salah satu metode identifikasi yang akurat dan cukup terjangkau biayanya adalah menggunakan spektroskopi inframerah. Nilai serapan yang dihasilkan dari proses spektroskopi dianalisa menggunakan 3 model yakni SVM, KNN, dan Naive-Bayes. Dalam penelitian ini SVM(Linear), KNN, dan Naive-Bayes menghasilkan nilai akurasi berkisar 99% dan model Naive-Bayes menjadi model yang tercepat dibandingkan model lain dalam mengklasifikasi kultivar mangga.

Kata kunci : *big data, klasifikasi, kultivar mangga, machine learning, near infrared*

ABSTRACT

DEVELOPMENT OF MANGO CULTIVAR CLASSIFICATION MODEL USING MACHINE LEARNING BASED ON NEAR INFRARED SPECTROSCOPIC DATA

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Identification of cultivars in mango can be done using traditional methods such as observing the morphology of the fruit and also the smell of the fruit to be identified. However, these observations are not always accurate if the method used is only for a few samples. This weakness has the potential to cause falsification of mango cultivars and problems in identification in mango orchards that have unidentified tree material. To overcome this, it is necessary to carry out a systematic identification process so that mango cultivars can be identified using several existing samples without destroying the samples. One method of identification that is accurate and quite affordable is the use of near infrared spectroscopy. Absorption values generated from the spectroscopic process will later be analyzed using *machine learning*, so that the classification process of absorption values will be more accurate and faster than traditional method. The absorption value resulting from the spectroscopic process was analyzed using 3 models, namely SVM, KNN, and Naive-Bayes. In this study, SVM (Linear), KNN, and Naive-Bayes resulted in accuracy values of 99% and the Naive-Bayes model became the fastest model compared to other models in classifying mango cultivars.

Keywords : *big data, classification, machine learning, mango cultivar, near infrared*