

***Implementation of Convolutional Neural Network for Quality Classification of
Processed Rubber Latex***

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ABSTRACT

Indonesia is one of the largest natural Rubber producers in the world, with the majority of its production coming from smallholder plantations. The quality classification of processed Rubber latex is an important aspect, as it determines its eligibility for export and industrial utilization. However, in many processing factories, the quality assessment is still conducted manually and subjectively, leading to potential inconsistencies in classification results. Therefore, this study aims to develop a quality classification system for processed Rubber latex using the Convolutional Neural Network (CNN) method, specifically by implementing the MobileNetV2 architecture. The Rubber images used in this research were collected directly from crepe samples obtained at a Rubber processing factory in Jember, Indonesia. These images underwent preprocessing stages before being used in the training phase. The resulting CNN model achieved a training accuracy of up to 99%, with the best validation accuracy of 96% at the 35th epoch, and the lowest validation loss value of 0.2799. Testing on unseen data yielded an accuracy of 92%, indicating strong model performance despite slight signs of overfitting. The trained model was then integrated into a mobile application based on the Android platform to enable real-time classification. This system is expected to offer an efficient and accurate solution for automatically determining the quality grade of processed Rubber latex.

Key words: *Classification, Rubber Latex, Convolutional Neural Network, MobileNetV2*