ABSTRACT

Abundant natural wealth makes people often ignore natural objects found in nature such as minerals and rocks. Without humans knowing there are many types of minerals found in nature. With the many types of minerals found in nature, then mineral exploration requires a long time and a lot of costs in separating between types of minerals and other minerals in one sample.

Therefore, in this study, the author has designed a system that can identify mineral classifications based on color and shape using *Grey Level Co-occurrence Matrix* (GLCM) *for extraction features and Learning Vector Quantization* (LVQ) *for classification.* GLCM *is an extraction method that changes the original color of the image object to a gray color that has a degree of grayness.* LVQ *is a classification method where each output unit presents a class.*

The results of this study are that mineral imagery can be classified using matrix processing applications using the GLCM *and* LVQ *methods for chromite, quartz, calcite, and background in Sebuku region with* 69.3% *accuracy of a total* 110 *test images with computing time* 3.8271 *seconds. Whereas for the cassiterite, epodite, quartz, and background classes in the Bangka Belitung region with* 68.4% *accuracy of the total* 110 *test images with a computing time of* 3.435 *seconds.*

Keywords : *Grey Level Co-Occurrence Matrix*, *Learning Vector Quantization, and minerals*