

Contrast enhancement for Ziehl-Neelsen tissue slide images using linear stretching and histogram equalization technique

Ziehl-Neelsen staining method is a common technique used to diagnose tuberculosis infection. Clinical samples such as sputum or tissue are stained using Ziehl-Neelsen procedure and analysed manually by microbiologist for detecting TB bacilli. However, the screening process is labour intensive and time consuming. Image enhancement tools can be used to improve the manual screening process. This paper analyses the performance of linear stretching and histogram equalization techniques for Ziehl-Neelsen tissue slide images. Both enhancement techniques which are originally implemented for gray-scale image have been adapted for colour images. Although the adapted image processing technique is simple, the results indicate that these methods may have some potential to be used for improving the quality of Ziehl-Neelsen slide images. Overall analyses show that the linear stretching using local minimum and maximum value has successfully improved the image contrast and enhance the image quality.