The recognition of the acute Leukemia blast cells in colored microscopic images is a challenging task. Segmentation is the essential step for image analysis and image processing. In this paper, an algorithm is presented that consists of panel selection followed by segmentation using K-means clustering then a refinement process. This algorithm was applied on public dataset designed for testing segmentation techniques. The results were compared with two different segmentation techniques developed by other researchers on the same data set. Our algorithm results in a sensitivity of 97.4 % and specificity of 98.1%. The developed algorithm was tested to another dataset of samples extracted from patients in local hospitals. The algorithm results in sensitivity of 100%, Specificity of 99.747% and accuracy of 99.7617%. The results were approved by expert pathologists.

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Index Terms
Keywords

Leukemia, segmentation, image enhancement, K-means, and watershed method.