# ABSTRACT

Malaria is a very serious infectious disease caused by a peripheral blood parasite of the genus Plasmodium. Conventional microscopy, which is currently "the gold standard" for the malaria diagnosis has occasionally proved inefficient since it is time consuming and results are difficult to reproduce. As it poses a serious global health problem, automation of the evaluation process is of high importance. In this work, an accurate, rapid and affordable model of malaria diagnosis using stained thin blood smear images was developed. The method makes use of the intensity features of Plasmodium parasites and erythrocytes. Images of infected and non-infected erythrocytes were acquired, pre-processed, relevant features extracted from them and eventually diagnosis was made based on the features extracted from the images. The main part of this work is devoted to the extraction of features from the red blood cell images that could be used for distinguishing between infected and non-infected red blood cells. A set of features based on intensity have been proposed, and the performance of these features on the red blood cell samples from the created database have been evaluated using artificial neural network (ANN) classifiers. The results have shown that these features could be successfully used for malaria detection.