

ABSTRACT

Nailfold capillaroscopy [NC] is a non-invasive imaging technique employed to assess the condition of blood capillaries in the nailfold. It is useful in the detection of diabetes mellitus, scleroderma spectrum of disorders and connective tissue diseases. Here diabetes is chosen for the study due to its social relevance. Diagnosis based on NC is typically performed by manual inspection. Computerized nailfold capillaroscopy can help reduce the inherent ambiguity present in human judgment while greatly reducing the time for diagnosis. In this paper we present diabetic image samples obtained using a USB digital microscope. The images so obtained are of low contrast and hence image enhancement and segmentation becomes very much crucial to carry out computer based analysis. We evaluate and compare the performance of enhancement and segmentation algorithm on six different groups of image samples. The segmented image can then be classified either as normal or diabetic (enlarged, tortuous). We demonstrate that our algorithm works satisfactorily well in segmentation and classification of enhanced images. The results so obtained are validated by doctor.