

An Effective and Efficient Segmentation Method for Leaf Disease Detection using Spatial Fuzzy C Means Algorithm

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Abstract: *One of the most significant industries, agriculture, is crucial to the socio-economic progress of a nation like India. In agriculture, maintaining crops and preventing illness are difficult undertakings. They need professional human resources for the job, but it is really tough to find an experienced person. Foliar diseases in turmeric plants often cause significant reduction in both quality and quantity and result in economic loss for turmeric products. This paper presents an efficient image segmentation method using Spatial Fuzzy C means algorithms (FCM) to improve the segmentation accuracy using turmeric plant leaf images. The proposed method utilizes the advantage of noise-robust nature and provides more information in segmentation process. Moreover, spatial FCM algorithm is employed to overcome the limitation of K means and fuzzy C means (FCM) algorithm. The benefit of the spatial FCM algorithm for image segmentation in the sense of low computation time and the advantages of spatial FCM algorithm in the sense of accuracy are considered. The challenging task of proposed spatial FCM algorithm for image segmentation performance are analysed and evaluated based on their parameter like MSE, PSNR and Accuracy.*

Keywords: Foliar Disease, Image Segmentation, Spatial FCM Algorithm, Accuracy.

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