Classification of Neofabrea and Peacock Leaf Spot Disease in Olive Plants using Image Processing Techniques

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ABSTRACT

Olive plant is affected by numerous different types of diseases; various pathogens, as well as deficiencies, cause diseases. Identification and classification of diseases is an essential phase in plant disease detection, and image processing techniques expedite this process. In this paper, we have classified Neofabrea leaf spot and Peacock leaf spot diseases which affect the Olive plants. Both the diseases are visually similar, and hence, the classification between the two is quite a problem in the farms, choosing the right pesticide depends on classifying the disease in the first phase. Since both the diseases manifest similar symptoms; hence, it becomes challenging in the real-life scenario to identify the right disease. We have classified the leaves infected by both diseases using the algorithm which we have devised. The leaf samples are collected from online sources, and healthy olive leaf samples are collected from the local olive fields. The classification algorithm contains various phases; in the first phase, the Region of Interest is isolated using k-means clustering. Next phase deals with deriving various texture features; after that, we select the highly correlated texture features pairs, selected features values are passed through an empirical formula with predefined confidence levels to get the final value. Classification of diseased leaves is done using the final threshold value achieved through the devised empirical formula. We have achieved high Accuracy score and Mathew's correlation coefficient values at a specific threshold on a limited dataset.



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