Identify of rubber leaf diseases using convolutional neural network

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The rubber tree, or Hevea brasiliensis (H. brasiliensis), is one of the most important commercial crops in the world. It belongs to the family Euphorbiaceae. The Rubber trees are also a major plantation crop in Sri Lanka. The Rubber tree is affected by several severe diseases, categorized into rubber leaf, stem and branch, panel and root diseases. By identifying the real causes of rubber leaf diseases, the shortcomings of rubber leaf diseases, and the implications of the existing technology, solutions are provided to identify three specific diseases that are currently having a great impact on the economy of Sri Lanka. In most cases, these diseases are diagnosed by humans in Sri Lanka. When farmers are trying to identify these diseases, it is challenging to identify. If they make a mistake, the right remedies or treatments will not be able to give to the infected plant. From this issue, the country will lose a considerable amount of income. This study offers a machine learning method to automatically identify the diseases of rubber leaves without the need for human effort and subjective errors. The Convolutional Neural Network (CNN) was used to automatically identify and predict rubber leaf diseases. The experimental results indicated that the CNN model's accuracy is 93%, which will help more accurately and effectively identify the rubber leaf diseases than existing methods and technologies. This research provides a solution for reducing rubber leaf disease diagnosis in Sri Lanka.

Keywords: Convolutional Neural Network, Hevea brasiliensis, Rubber leaf diseases

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