Environmental Engineering and Management Journal

January 2022, Vol. 21, No. 1, 163-173
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

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DISCOVERY OF AGRICULTURAL DISEASES BY DEEP LEARNING AND OBJECT DETECTION

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Abstract

In this study deep learning and object detection models for image-based plant disease recognition have been carried. Trained models were tested on pictures and in real-time with a video camera for five different diseases in tomato leaves. Object detection algorithm was implemented from the personal computer, and deep learning models were applied via Google Colab. Real-time object detection was achieved in the developed model with YOLOv5 algorithm with the highest accuracy of 93.38% in validation accuracy and 94.48% in training accuracy with the highest value of 92.96% in precision. Furthermore, it has been observed that YOLOv5 algorithm gives faster and more accurate results than the previous versions of YOLO.

Key words: agricultural disease, deep learning, disease detection, object detection

Received: March, 2021; Revised final: September, 2021; Accepted: October, 2021; Published in final edited form: January, 2022

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