**LITERATURE SURVEY**

**1) A review on machine learning classification techniques for plant disease detection**

**AUTHORS:**  Shruthi, U., V. Nagaveni, and B. K. Raghavendra

In India, Agriculture plays an essential role because of the rapid growth of population and increased in demand for food. Therefore, it needs to increase in crop yield. One major effect on low crop yield is disease caused by bacteria, virus and fungus. It can be prevented by using plant diseases detection techniques. Machine learning methods can be used for diseases identification because it mainly apply on data themselves and gives priority to outcomes of certain task. This paper presents the stages of general plant diseases detection system and comparative study on machine learning classification techniques for plant disease detection. In this survey it observed that Convolutional Neural Network gives high accuracy and detects more number of diseases of multiple crops.

**2) Plant disease classification using soft computing supervised machine learning**

**AUTHORS:** Sehgal, Aman, and Sandeep Mathur

Plants are always concerned about the diseases introduced by pathogens For example infections, microorganisms and parasites in the plant bodies. It is globally recognized that, pathogens tends to cause huge yield misfortunes. Various researchers have explored how to diminish the harmfulness of pathogens in plants. A few analysts have explored some opposition qualities in plants and attempts to improve the obstruction of plants to pathogens. Meanwhile, different analysts have created ID and s coring framework for monitoring and examining the advancement or quality and also by anticipating the infection bolstered leaves. The reason for this Review work is to display the use of AI in the revelation of plant opposition.

**3) Image processing techniques for detecting and classification of plant disease: a review**

**AUTHORS:** Hungilo, Gilbert Gutabaga, Gahizi Emmanuel, and Andi WR Emanuel

Agriculture is the main contributor to Tanzania Economy. Apart from climate change, disease acts as one of contributing factors which results in the poor production of the most important staple foods like maize and cassava. This leads to economic loss and food insecurity in the area. Preventive action is needed for early detection of the diseases. Image processing techniques to detect disease on plant leaves can be a promising solution to the farmer. The current way of detecting disease using naked eyes done by an expert is a time-consuming and cumbersome task to implement in a large farm. This paper presents a survey of current studies in the area of image processing, by checking techniques used to detect disease on plants leaves or fruits and machine learning model used to classify the disease. The main aim of the paper is to show the current state of the art and clarify step taken during the image processing stage and check merit and demerit of each technique used also the performance of the machine learning model used to classify the disease. This review paper will be of important to other researchers working in the area of image processing for detecting and classification of plant -- leaves/fruit diseases to know the current state of the art in the field.

**4) Automated plant disease analysis (APDA): performance comparison of machine learning techniques**

**AUTHORS:** Akhtar, Asma, Aasia Khanum, Shoab A. Khan, and Arslan Shaukat

Plant disease analysis is one of the critical tasks in the field of agriculture. Automatic identification and classification of plant diseases can be supportive to agriculture yield maximization. In this paper we compare performance of several Machine Learning techniques for identifying and classifying plant disease patterns from leaf images. A three-phase framework has been implemented for this purpose. First, image segmentation is performed to identify the diseased regions. Then, features are extracted from segmented regions using standard feature extraction techniques. These features are then used for classification into disease type. Experimental results indicate that our proposed technique is significantly better than other techniques used for Plant Disease Identification and Support Vector Machines outperforms other techniques for classification of diseases.

**5) Plant disease classification using image segmentation and SVM techniques**

**AUTHORS:** Elangovan, K., and S. Nalini

For preventing the losses in the yield and quantity of the agricultural product, Classification is performed, if proper analysis is not taken in this approach or classification, then it produce serious effects on plants and due to which respective product quality or productivity is affected. Disease classification on plant is very critical for supportable agriculture. It is very difficult to monitor or treat the plant diseases manually. It requires huge amount of work, and also need the excessive processing time, therefore image processing is used for the detection of plant diseases. Plant disease classification involves the steps like Load image, pre-processing, segmentation, feature extraction, svm Classifer