**LITERATURE SURVEY**

**1) Plant leaf disease analysis using image processing technique with modified SVM-CS classifier**

**AUTHORS:**  T. Gupta

In this computing era, image processing has spread its wings in human life upto the extent that image has become an integral part of their life. There are various applications of image processing in the field of commerce, engineering, graphic design, journalism, architecture and historical research. In this research work, Image processing is considered for the analysis of plant leaf diseases. Plant leaf diseases can be detected based on the disease symptoms. Here, dataset of disease affected leaves is considered for experimentation. This dataset contains the plant leaves suffered from the AlternariaAlternata, Cercospora Leaf Spot, Anthracnose and Bacterial Blight along with some healthy leaf images. For this analysis, an autonomous approach of modified SVM-CS is introduces. Here, concept of cuckoo search is considered to optimize the classification parameters. These parameters further help to find more accurate solutions. This autonomous approach also extracts the healthy portion and disease affected leaf portion along with the accuracy of results.

**2) Automatic recognition of plant leaves diseases based on serial combination of two SVM classifiers**

**AUTHORS:** Y. Es-saady,T. El Massi,M. El Yassa,D. Mammass, and A. Benazoun

This paper presents a machine vision system for automatic recognition of plant leaves diseases from images. The proposed system is based on serial combination technique of two SVM classifiers. The first classifier uses the color to classify the images; it considers, at this phase, that the diseases with similar or nearest color belonging to the same class. Then, the second classifier is used to differentiate between the classes with similar color according to the shape and texture features. The tests of this study are carried out on six classes of diseases including three types of pest insects damages (Leaf miners, Thrips and Tuta absoluta) and three forms of pathogens symptoms (Early blight, Late blight and Powdery mildew). The results of the study show the advantages of the proposed method compared to the other existing methods.

**3) SVM classifier based grape leaf disease detection**

**AUTHORS:** P. B. Padol and A. A. Yadav

Grape constitutes one of the most widely grown fruit crops in the India. Productivity of grape decreases due to infections caused by various types of diseases on its fruit, stem and leaf. Leaf diseases are mainly caused by bacteria, fungi, virus etc. Diseases are a major factor limiting fruit production and diseases are often difficult to control. Without accurate disease diagnosis, proper control actions cannot be used at the appropriate time. Image Processing is one of the widely used technique is adopted for the plant leaf diseases detection and classification. This paper is intended to aid in the detection and classification leaf diseases of grape using SVM classification technique. First the diseased region is found using segmentation by K-means clustering, then both color and texture features are extracted. Finally classification technique is used to detect the type of leaf disease. The proposed system can successfully detect and classify the examined disease with accuracy of 88.89%.

**4) Extraction of the rice leaf disease image based on BP neural network**

**AUTHORS:** L. Liu and G. Zhou

Rice leaf diseases have occurred all over the world, including china. They have had a significant impact on rice quality and yield. Now, the control method rely mainly on artificial means. In this study, BP neural network classifiers were designed for classifying the healthy and diseased parts of rice leaves. This paper select rice brown spot as study object, the training and testing samples of the images are gathered from the northern part of Ningxia Hui Autonomous Region. The result shows that the scheme is feasible to identify rice brown spot using image analysis and BP neural network classifier.

**5) Mango Leaf Diseases Identification Using Convolutional Neural Network**

**AUTHORS:** S. Arivazhagan and S.V. Ligi

The identification of plant diseases plays a vital role in taking disease control measures in order to improve the quality and quantity of crop yield. Automation of plant diseases is very much beneficial as it reduces the monitoring work in large farms. Leaves being the food source for plants, the early and accurate detection of leaf diseases is important. This work includes a deep learning based approach that automates the identification of leaf diseases in Mango plant species. Five different leaf diseases such as Anthracnose, Alternaria leaf spots, Leaf Gall, Leaf webber, Leaf burn of Mango has been identified in a dataset consisting of 1200 images of diseased and healthy mango leaves. The proposed CNN model achieves an accuracy of 96.67% for identifying the leaf diseases in mango plant thereby showing the feasibility of its usage in real time applications.