Identification of Tea Root Rots Disease Through Image Recognization in Conventional Neural Network

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Abstract **- This paper proposes the identification and prevention of tea root rot diseases. Root rot is the leading diseases of the tea leaves occurs during its growth period when it is planted in overwatered or poorly drained soil. This usually occurs when soil is not properly aerated and soil remained wet for a long time. A survey is conducted to identify various tea leave diseases and found that wet and non aerated soil leads to poor absorption of oxygen in the soil, as oxygen starvation takes place it allows the root to die and decay. This paper proposes that still prevention can be done to save the plants and use it commercially without much loss.**

Index Terms **- CNN, Python, Medicinal, Diseases, Deep-Study, Led-Camera.**

INTRODUCTION

Plant root rots are the crucial conditions arises in the root of the plants resulting from wet soil or poorly drained soil. This wet soil prevents oxygen absorption in the roots affecting various vital functions of plant roots such as assimilation, absorption, photosynthesis, transpiration, fertilization, pollination, germination, etc. Eventually lack of oxygen allows the roots to die or get decayed. This all process can be prevented by using proper aerated and drained soils which saves the roots from getting spoiled.

CNN

CNN is the method in which the image can recognize deeply and give the best result of defected roots. With the help of neural network, the image identifies clearly and the default(colour) of root rots can be verified easily by these the proper care will be taken for tea roots rots and then the roots give full nutrition to the leaves.

By the help of these method, it finds the result up to 95.5% of accuracy. From which the proper identification will be done.

Note : 1. Digital camera, 2. LED ring light source, 3. Conveyor belt.

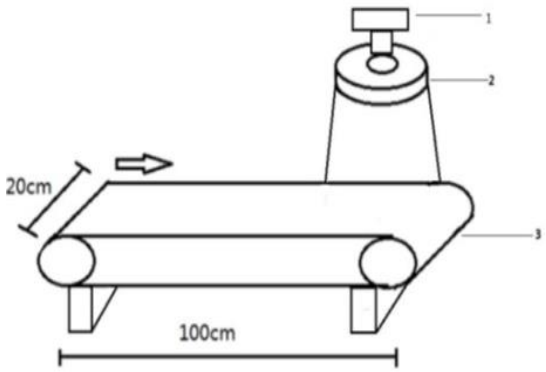

Fig.1 The acquisition device of experimental image

Table –

S. No	Author Name	Paper Title	Method	Results	Remarks
1	Gensheng Hu, Xiaowei Yang, Yan Zhang, Mingzhu Wan	Identification of Tea leaf diseases by using an improved deep CNN	CNN of CIFAR10-quick model	92.7%	
2	XiaoXiao Sun, Shaomin Mu, Youngyu Xu, Zhihao Cao, Tingting Su	Image recognition of Tea leaf diseases based on CNN	SVM BP neural network in CNN	93.75%	
3	Bikash Chandra Karmokar, Mohammad Samawat Ullah,	Tea leaf diseases recongnition using	Pattern recognition	91%	

	Md Kibria Siddiquee, Kazi Md Rokibul Alam	neural network ensemble			
4	Jing Chen, Qi Liu, lingwang Gao	Visual Tea leaf disease recognition using a CNN model	SVM MLP algorithm	90.16%	
5	Somnath Mukhopadhyay, Munti Paul, Ramen Pal, Debashis De	Tea leaf detection using multi-objective image segmentation	NSGA-II PCA SVM	83%	
6	Sheng-Hung Lee, Chia-Chang Wu, Shih-Fang Chen	Development of image recognition and classification algorithm for Tea leaf disease using CNN	Faster R-CNN	Brown blight-63.58% Blister blight-81.08% Algal leaf spot-64.71%	
7	SUN Xiaoxiao, MU Yougyu, CAO Zhihao, SU Tingting	Image recognition of Tea leaf disease based on CNN	SVM BP	93.75%	
8	Selim Hossain, Rokeya Mumtahana Mou, Mohammed Mahedi Hasan, Sajib Chakraborty, m Abdur Razzak	Recognition and detection of Tea leaf diseases using support vector machine	SVM	90%	
9	Alok Ranjan Srivastava, M Venkatesan	Tea leaf disease prediction using texture-based image processing	Random forest classification K-nearest neighbor classifier Support vector machine Neural network	Improves tea production	
10	Gensheng Hu, Haoyu Wu, Yan Zhang, Mingzhu Wan	A low shot learning method for tea leaf disease identification	VGG16 deep model SVM C-DCGAN	Reaches 90%	

CONCLUSION

This study concludes that water logging and non-aerated soils are the leading causes of plant root rots. Above done survey helps to gain knowledge regarding various plant root rots and however to identify if any abnormalities or any loss occurs during growth period of plant leaves. As plant leaves are most consumed product, which is used by a huge population, so it's mere responsibility to identify the abnormality and resolve it quickly to consume it up to fullest. This paper also immerse that plant root rots occurs due to poor absorption of oxygen as wet soil fails to do so which also allows the root to decay. Prevention of root rots can be done by using proper aerated soil for plantation, replant in fresh and good soil, avoid standing water, etc.

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