Abstract

The essential issue which affects the amount of tea plantation product is tea leaves disability. One of solution to prevent this problem is identify type of disability early such as recognize kind of disease that attacks the tea leaves. It due to give pesticide on the target properly.

The research aims to detect and classify the physical condition of tea leaves into four categories which are Normal tea leaves, Blister disease, Mite and Thrips disability. In this final project, Wavelet Transform is applied to detect contour of tea leaves when the process of feature extraction using low pass and high pass filters. Wavelet Transform has advantages to capture smoothing arch contours of veins leaves structure. After that, fisherface were made to find the principle components or significant features. Furthermore, Probabilistic Neural Network (PNN) was used to classify datas.

By using this combination methods, the system can recognize into 4 classes from 240 total tea leaves datas for 120 training data and 120 testing data which the highest accuracy reach 92,5%. Achievement of the highest accuracy was obtained by using the best parameters of Wavelet transform, PCA LDA and PNN. these parameter are Haar Wavelet transform used level 3, used 33 feature PCA,and used 0.41 PNN smoothing parameter.

***Keywords**: tea leaves of Camellia sinensis, Blister, Mite, Normal, Thrips, Wavelet Transform, Probabilistic*