Several researches in leaf identification did not include color information as features. The main reason is caused by a fact that they used green colored leaves as samples. However, for foliage plants—plants with colorful leaves, fancy patterns in their leaves, and interesting plants with unique shape—color and also texture could not be neglected. For example, Epipremnum
pinnatum ‘Aureum’ and Epipremnum pinnatum ‘Marble Queen’ have similar patterns, same shape, but different colors. Combination of shape, color, texture features, and other attribute contained on the leaf is very useful in leaf identification. In this research, Polar Fourier Transform and three kinds of geometric features were used to represent shape features, color moments that consist of mean, standard deviation, skewness were used to represent color features, texture features are extracted from GLCMs, and vein features were added to improve performance of the identification system. The identification system uses Probabilistic Neural Network (PNN) as a classifier. The result shows that the system gives average accuracy of 93.0833% for 60 kinds of foliage plants.

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Index Terms

Computer Science
Pattern Recognition

Key words

GLCM Neural network Plant identification
PNN

Polar Fourier Transform (PFT)
