

ABSTRACT

Indonesia is home to a variety of flora and fauna. Begonia is a type of flora found in Indonesia. Begonia is a flower of many species; there are more than 1700 in the world and the number is growing. Begonias, on the other hand, are rare plants, so it is necessary to develop a system that can identify the Begonia species quickly and reliably. Each Begonia species has a unique leaf pattern. There are only 2 types of Begonia used in this research. This is because at the time of taking photo data in the field, there are only 2 types of begonias that are "ready" or not in the dormant phase (sleeping) and the number of specimens (individual) available is sufficient to be taken re-representative images as the next test sample.

In this study, researchers will create a classifier using a decision tree algorithm to categorize Begonia types with leaf patterns obtained by the box counting method. By measuring the degree of self-similarity observed at different scales, fractal analysis is used to extract characteristics from plant structures such as leaf shape and petal shape. These attributes are then used to construct decision trees for physical plant classification.

The fractal and decision tree methods have the highest percentage of test accuracy on resized images with a size of 512 x 512 pixels, which is 100%. While the lowest test accuracy is obtained on resized images having a size of 256 x 256 pixels which is equal to 97.3%.. The results showed that fractals and decision trees obtained higher accuracy and were able to identify plant species that had not previously been found. This method has the potential to change the way we identify and study plant species by enabling us to extract relevant information from complex structures that would be difficult to measure using standard methods. This approach can be used in a variety of applications, including crop conservation, agriculture, and biodiversity research.

Keywords: *Begonia, Decision Tree, Box Counting*