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PLANT SPECIES IDENTIFYING USING LEAF THERMAL IMAGE SEGMENTATION METHODS

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ABSTRACT

Thermography creates thermal images that help to determine color intensity. Color intensity helps to identify meaningful object in the color, image segmentation plays an important role in discovering the area of interest in the leaf image. In the middle part of the leaf, the average temperature is 0.94°C above the apex of the leaf and 0.81°C above the base of the leaf. The results showed that the temperature of the leaf was lower than the temperature of the plant. And the entire blade's average temperature is 24.07°C, which is higher than the soil temperature in the past (19.53°C). For the same maize type, drought stress treatment leaf temperature is higher than normal water treatment temperature. It has also been found that the temperature of maize with good resistance to drought is higher than the temperature of the bad, the higher the better. The above results showed that the temperature distribution characteristics in crops could be effectively obtained through the use of thermal infrared images, which also provided the potential for rapid identification of plant drought resistance.

The segmentation aim is to decompose an image into different areas for further study, while another is to adjust the representation of an image for faster analysis. A single or a combination of segmentation techniques can be applied on the basis of application to efficiently solve the problem. Segmentation is done using pixel-level or object-level properties of the object by marking off an object on an image. Such properties can be distinguishing edges, texture, pixel strength, form, width, and orientation within the object. There are many techniques available for segmentation that segment the thermal picture. Particularly the segmentation techniques are watershed segmentation, segmentation of thresholds, segmentation based on clusters and neural artificial network. These techniques of segmentation use algorithms including global thresholding, transformation of the watershed, K-medoids, clustering of K-means, Otsu thresholding, Kapur thresholding. This paper includes a review of literature on pioneering segmentation techniques and applicable algorithms used for thermal image segmentation.

KEYWORDS: *Global Thresholding, Watershed Transform, K-Medoids, K-Means Clustering, Otsu thresholding, Kapur Thresholding*

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