Study of Plants Growth by Image Analysis

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Abstract

Analysis of plants growth is an important step for the evaluation of plants performance and productivity. This paper presents study of plants growth by image analysis from seeds and up to photosynthesis. To extract parameters two different segmentation methods are used, one for the seeds, and one for the plants, combined with morphological operations. The first image segmentation is achieved with Fuzzy C-Means clustering method and the second is achieved with entropy based method, using histogram evaluation. In tests, the segmented image is transformed in binary image and the relevant regions are extracted after applying morphological operation. The following parameters are calculated: the projected surface, the contour's perimeter, the seed's mass center, the projected surface, and the cotyledon's and hyper cotyledon's length for the plants.