Tomato Plant Diseases Classification for Mobile Phone Image Using SIFT-Beta Feature and Color Statistical Feature

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Plant disease classification is essential for food productivity and disease diagnosis in agricultural domain. The probability distribution and statistical properties are essential in image processing to define the features of typical image. The general usage of (Scale Invariant Feature Transform) SIFT has local feature extraction and global feature extraction (bag-Of-Features approach) for classification, and its classification result for unknown data also depends on code book (global feature) generation. Instead of using bag-Of- Feature approach, we proposed to apply Beta probability distribution model for SIFT to be directly represent the image information and then formed SIFT-Beta. The color statistics feature is extracted from RGB color space and then combines with SIFTBeta to produce proposed features. The proposed feature is applied in Support Vector Machine classifier. The classifier is trained for seven labels of tomato with six diseases and healthy.