

ABSTRACT

Plant species identification is essential for healthy survival as well as the preservation and protection of biodiversity. Manual identification is time-consuming, hence to address this issue deep learning algorithms for automated plant species identification have been developed. A Novel Architecture comprising of EfficientB4Net, Convolutional Block Attention Module (CBAM) and Residual Block Decoder is proposed to act as Autoencoder for identification and retrieval of twenty distinct groups of medicinal plants, widely available in southern India. The EfficientB4 encoder compresses and encodes the input features along with channel and spatial features to the Residual Block Decoder for efficient learning. Residual Block Decoders work to reconstruct the data from the encoded form to be as close to the original input as possible, by eliminating noise. The information-rich encoded features and the global features from the CBAM are transferred to the fully connected layer and stored in the database for retrieval of the plants. When a query image is received, the encoded feature of the query image and the database images are compared using similarity measurement, and the related images are retrieved. From the retrieved images, the query image is identified and the experimental results clearly show that the proposed method has achieved 95% accuracy when compared with other methods.