**ABSTRACT**

Plants play an important role to equalize the carbon-oxygen cycle in the earth. Without knowing the importance of valuable plants, the plants are at the extinction. To help the naïve user to know about plants and it is important there is demand to develop a system to classify the plants based on the leaves. Due to the boon of ICT and machine learning algorithms, the leaves can be easily classified. Plant Leaf images are collected in Coimbatore. The main aim of this paper is to classify the leaves using Support Vector Machine (SVM) using KBF kernel, K-Nearest Neighbor, AdaBoost classifiers and also the accuracy obtained in these classifiers are compared. The performance of the models is evaluated using 10-fold cross validation method and the results are discussed. The classifier using SVM and KNN outperforms well than Adaboost classifiers