**ABSTRACT**

Plants are the distinctive living things which incorporate many good things in it. At present due to environment degradation, many rare plant species on the earth are still unknown and are at the boundary of extinction. This must be avoided and they have to be preserved. This paper mainly focused on extraction of features for accurate classification of its types. Each plant leaves are different in shape, texture etc. By extracting the unique features in it they can be easily classified. Morphological and geometrical features from leaves are extracted here. Adaptive Neuro-Fuzzy Inference System (ANFIS) is used for efficient classification. The ANFIS is trained by 50 different leaves to classify them into 5 types and its efficiency is calculated by accuracy and execution time factor.