**ABSTRACT**

Background/Objectives: Biologists found that the morphological, physiological, bio-chemical and molecular methods of plant identification are found to be laborious and require great amount of technical knowledge. This research paper concentrates on the identification of varieties of tea using leaf images. It aims to identify the species in an easy and an accurate manner. Methods/Statistical analysis: The phases involved in this work are image pre processing, feature extraction and classification. Three classification algorithms such as Fuzzy Inference system, Radial basis function network and K-nearest neighbour were used and optimized to achieve a better accuracy and execution time. Results/Findings: The classification algorithm K-nearest neighbor, Radial basis function neural network and Fuzzy Inference System are trained with 40 samples and tested using 20 samples. Conclusions: Fuzz