TITLE	PLANT LEAF CLASSIFICATION USING LEAF SHAPE AND
	TEXTURE FEATURES WITH GENETIC ALGORITHM
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## ABSTRACT

The purposes of this research were (1) to take each suitable process of genetic algorithm parameters in plant leaf classification by using leaf shape and texture features (2) to compare the results of leaf classification between the processes of genetic algorithm and k-nearest neighbors algorithm. The data used in the trial was 340 leaves classification from 30 plant species. This research used leaf dataset of Pedro F.B.Silva et al.(2014) which included 14 features divided into 8 shape features and 6 texture features. The split test was separated into 2 parts 70% for modeling and 30% for testing modeling; conducted by the configuration parameters to the process of genetic algorithm parameters in plant leaf classification. Formatting 36 models of parameter was found that Pop-Size = 50, loop = 100, Pm = 0.03 and Pc = 0.9 were at the most suitability. To take genetic algorithm parameters in plant leaf classification revealed that the accuracy was at 91.18%, recall was at 92.71%, precision was at 94.58% and f-measure was at 90.96%. k-nearest neighbors was conducted to leaf classification and adjusted parameters k = 1, 3, 5, 7 and 10 for performance. The results revealed that the accuracy was at 79.12%, recall was at 79.50%, precision was at 73.17% and f-measure was at 76.20%. To conduct the performance measurement between the processes of genetic algorithm and k-nearest neighbors algorithm was found that the accuracy, recall, precision, f-measure of genetic algorithm process were more evaluate than k-nearest neighbors algorithm process at 12.06% in the accuracy, 13.21% in recall, 21.41% in precision and 14.76% in f-measure.

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