

ABSTRACT

In 2020 Indonesia and various countries in the world feel the impact of the Covid-19 virus which has caused many business and economic sectors to decline, but there are several sectors that are actually running well, one of which is the agricultural sector in the field of medicine. In this sector there are also many innovations. what is done, such as making processed herbal plants that are taken from the leaves. Talking about herbal plants where the color and shape of a leaf of an herbal plant that are classified as similar, it will be difficult to distinguish the type and name and efficacy of the leaf of the herbal plant, then Image Processing is an option to make it easier for humans to distinguish the efficacy of herbal plant leaves based on the kind. This research was conducted only on the leaves of herbal plants because the majority of the use of herbal plants was taken from the leaves.

The steps in making this research are to create a dataset of herbal plant leaves manually and then train the data so that the types can be distinguished using the Gray Level Co-occurrence Matrix and the K-Means Clustering algorithm is used to recognize an image and use the input and output of a website. This algorithm was chosen because it can group data based on variables to achieve data groups to be analyzed with similarity of characters in clusters and maximize differences between clusters with one another.

In this final project, the author tries to analyze the differences between 5 types of herbal leaves using the Image Processing method, using Image Processing using the Python programming language and the K-Means Clustering algorithm in the manufacturing process, and the Gray Level Co-occurrence Matrix as feature extraction. The results of this study will be compared with the Gaussian Mixture Model algorithm with the results obtained with an average percentage of accuracy testing on the K-Means of 73.72% while the Gaussian Mixture Model of 79.20%.

Keywords: *Image Processing, Python, Dataset, K-Means Clustering, Gray Level Co-occurrence Matrix.*