ABSTRACT

Folliculitis is inflammation of the hair follicles. It is caused by infection, especially Staphylococcus aureus. In general, it in hibits 20% of the human populationcarrying Staphylococcus aureus bacteria on body surfaces, especially the nose, axillae,and perineum. Staphylococcus aureus produces several toxins that can increase the chance of invasion and help maintain the life of Staphylococcus in the tissue. These toxins cause various effects on the immune system. As a result of the disease can reduce the physical and mental health of the sufferer which in turn will interfere withthe patient's daily activities. At this time there is still no way to know the type of thisdisease other than doing research on the patient's cells. With the development of technology, a system can be made to detect the disease by segmenting the image using Fractal and K-Nearest Neighbor methods.

Fractals are objects that have self-similarity but on a different scale. This means,the parts of the object will look the same as the object itself when viewed as a whole.Fractal will produce a fixed point or attractor. Attractor points cause whatever type ofimage is input, the final result will be the same. K-Nearest Neighbor is used to find the shortest distance between the training data entered intothe database and the test data and classify them.

This final project aims to create an simulation in Matlab that can detectand classify the types of folliculitis by taking the dataset source from https://dermnetnz.org. The classification is divided into three classes, namely: Superficial Folliculitis, Deep Folliculitis, and Malassezia Folliculitis. The best performance of this study is 83.33% accuracy, 100% precision and 100% recal with the K-Nearest Neighbor parameter being the value K=3 and the eucldien distance. In this final project fractal is used as feature extraction, and K-Nearest Neighbor is used as classification.

Keywords: Folliculitis, Classification, Fractal, K-Nearest Neighbor.