ABSTRACT

Homogeneous Leukoplakia, Hairy Leukoplakia, and Oral Candidiasis is a white lesion found in the Oral cavity. Homogeneous Leukoplakia is a pre-cancerous lesions caused by chronic irritation. Hairy Leukoplakia is one form of Leukoplakia, just Hairy Leukoplakia does not include pre-cancerous lesions. Oral Candidiasis is a fungus that grows in the mouth, has a clinical picture similar to Leukoplakia. Since Hairy Leukoplakia became the main characteristic found in AIDS patients, the Difference with the others mainly Leukoplakia lesions that have similar clinical image with Hairy Leukoplakia becomes very important. Therefore we need a system that can identify and distinguish the three lesions with maximum accuracy. Three types of white lesions can be detected by processing the texture information contained in certain areas of the Oral cavity.

The development of digital image processing technology can be used as a solution to reduce the inaccuracies of human vision. In this final project created a system that could identify the image of the lesions Homogeneous Leukoplakia, Hairy Leukoplakia, and Oral Candidiasis based image texture information, by using a feature extraction method Gray Level Co-Occurrence Matrix (GLCM) and using the classification K-Nearest Neighbor (K-NN). Image obtained from official sources in the form of a digital image. To determine the performance of the system, measured the level of accuracy of the system. The data is processed by using software MATLAB R2014a.

After testing, concluded that the system can distinguish Homogeneous Leukoplakia, Hairy Leukoplakia, and Oral Candidiasis with the highest accuracy of 84.848%. The combination of parameters that provide the highest accuracy GLCM angle 90^0, GLCM Difference Entropy property, the value of K 1 and K-NN Euclidean distance.

Keywords: Homogeneous Leukoplakia, Hairy Leukoplakia, Oral Candidiasis, Gray Level Co-Occurrence Matrix (GLCM), K-Nearest Neighbor (K-NN).