

## **ABSTRACT**

*Teeth are the hardest digestive tool found in the mouth with the function of tearing, cutting and chewing food before the food goes into the esophagus. Dental health is directly related to the body's metabolic activities because it is a part of digestion. Therefore, dental care is very important to prevent the occurrence of various diseases that can damage teeth. There are various types of dental diseases, one of which is granuloma that occurs in dental tissue.*

*Determination of the disease that occurs in the teeth at this time is done by taking pictures of the teeth, then disease diagnosis in the teeth carried out by a dentist radiology specialist through the reading of the radiograph film. This reading is done in plain view, so the diagnosis results may be subjective. Therefore, it needs a system that can help the dentist in diagnosing the disease. From several studies based on the processing of periapical radiographic images that have been carried out to detect granuloma disease in teeth, the authors will synthesize from previous studies and review the most accurate methods. In this final project the method to be tested again is the Gabor Wavelet and Discrete Cosine Transform (DCT) methods, as feature extraction is then classified using the K-Nearest Neighbor (K-NN) method.*

*Data retrieval process was done by taking some granuloma and non granuloma teeth image data with 40 images. In the study of granuloma disease identification proved able to achieve the highest level of accuracy on Gabor Wavelet method of 83.33% and computation time of 9.809 seconds. While the Discrete Consine Transform method achieves the highest accuracy of 79.17% with a computing time of 0.4986 seconds. Between the Gabor Wavelet method and the Discrete Consine Wavelet seen from the accuracy that already obtained, the best method used is Gabor Wavelet.*

**Keywords: Teeth, Granuloma, Copyright Research, Gabor Wavelet, Discrete Cosine Methode**