

ABSTRACT

Periapical radiograph is one of X-Ray application which used by the dentist to see the entire layer of the teeth and detect the condition. The uncertainty results of periapical radiograph cause the dentist's analysis get doubtness and differences handling in the same case. One of disease which detected by periapical radiograph is granuloma. Granuloma is an inflammatory disease near the tooth's apex. This kind of disease is difficult to be identified by general dentist, though radiology specialist dentist is too way too rare in Indonesia.

The type of this research is descriptive explanation's experiment for detection in the periapical teeth with the hypothesis granuloma periapical using DWT (Discrete Wavelet Transform) and PCA (Principal Component Analysis) as a method of feature extraction and K-NN (K-Nearest Neighbour) as a method of classification by using data samples to train as much as 16 images and 20 test images.

This final study results are obtained 90% accuracy rate with the computing time 1.389027 seconds with either good MOS category. It is expected also to the ability of this system, can help the dentist and expert radiologists that can be used as a proper standard of accuracy in the diagnosis of granulomas.

Keyword : *periapical radiograph, granuloma, DWT (Discrete Wavelet Transform), PCA (Principal Component Analysis), K-NN (K-Nearest Neighbour)*