

ABSTRACT

Filariasis or elephantiasis often called disease is a disease that is growing rapidly in present, even in some areas there have been in Indonesia. The disease is caused by filarial worms (*Wucheria bancrofti*, *Brugia malayi*, *Brugia timori*) transmitted by various species of mosquitoes. This disease is chronic and if it does not get treatment as early as possible will lead to permanent disability in the form of enlargement of the legs, arms and genitals of both women and men. Because of its chronic then it can not know someone was already suffering from Filariasis, or not, so after acute (chronic) had known that a person is suffering from Filariasis, with acute clinical signs. During this detection is only performed by physicians through observation using a microscope with a blood sampling done at the afternoon or night. For it required a tool that can instantly detect a person is exposed to the disease Filariasis and can count filarial worm in the blood sampling.

In this final task created a simulation program for detecting filarial worm in blood by using Matlab software, so that the resulting disease detection program based on image of blood. The numbers of blood samples used were two blood samples containing filarial worm and a blood sample with no filarial worms with taking pictures with different angles so getting 153 images: 78 images of blood containing filarial worm and 75 images of blood not containing filarial worm.

Processing starts from data acquisition, image processing and testing. The method for image processing is morphology. After the simulation, it is said that the program is good enough to detect the disease Filariasis with accuracy of 96,08% by using edge detection of *Canny*.

Keyword: *Filariasis, Edge Detection, Morphology, MATLAB*