

ABSTRACT

TBC Disease usually infects through contaminated air with *Mycobacterium Tuberculosis* bacteria that spreads when the sufferer of TBC cough. *Mycobacterium Tuberculosis* shapes like a bar, and its nature can hold acid. Because of that, this bacterium is also known as BTA (Bakteri Tahan Asam). If someone sputum contain this bacteria, than that person can be conclude positive infected by TBC.

In the medical world of science the sputum examine by using a microscope to observe sputum that already put in a glass tool. The purpose for this kind of examination to determine whether inside the sputum contains a BTA or not. When the sputum contains a BTA, than the BTA need to be counted and classified based on the level of ugliness. The current process to count the number of BTA in a field test is done manually, if the glass tool that needs to be check by the medical people is a lot it will affect the eyes of that person. Looking at the microscope periodically over and over again will make the eyes tender and overused. In order those things above, in my thesis I develop a program that can detect TBC disease by counting the number of bacterium in someone phlegm and classified it using image enhancement, image segmentation and characteristic of extraction.

Result test with extraction using broaden analysis to count the size of the bacteria based on threshold value 0.8 and median windows filter size 7x7 the level of accuracy that can be present for every images is: Negative TBC 100%, Positive 1 TBC 95%, Positive 2 TBC 71.43%, Positive 3 TBC 44%. But, from the overall data with general testing using five different points of view this program has an accuracy level 100% in terms of detection and classification of TBC disease based on the level of damage it cause.

Key words: TBC, sputum, *Mycobacterium Tuberculosis*, image enhancement, image segmentation, characteristic of extraction.