Mohammad kholil, 2019. **Rancang Bangun Mikroskop *Autofocus* Dengan Metode Histogram Untuk Pengamatan Bakteri *Tuberculosis (TBC)***. Skripsi dibawah bimbingan Dr. Riries R, ST.MT. dan Winarno, S.Si. MT., Departemen Fisika, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRAK

Penelitian ini dilakukan untuk mendesain mikroskop *Autofocus* dengan metode histogram yang dapat mengamati bakteri *Tuberculosis (TBC)*. Bakteri yang diamati berupa preparat atau sediaan dahak yang telah diwarnai dengan *Ziehl Neelsen*. Mikroskop yang didesain dilengkapi dengan program untuk mengendalikan motor penggerak fokus yang menggerakkan tabung mikroskop dan program untuk menampilkan citra dan histogram citra bakteri TBC secara digital. Histogram dianalisis berdasarkan nilai intensitas yang tersebar antara 0-255 dan dicari nilai entropinya. Hasil pengukuran yang telah dilakukan sebanyak 20 kali lapang pandang pada bakteri TBC menunjukkan bahwa daerah yang paling fokus mempunyai nilai entropi paling tinggi dengan tingkat akurasi berkisar pada nilai 81.90476% hingga 100 % pada perbesaran 1000 kali.

Kata kunci : Mikroskop *Autofocus*, *Tuberculosis (TBC),* Histogram, Entropi.

Mohammad kholil, 2019. ***Design of Autofocus Microscope With Histogram Method to Observe Tuberculosis Bacteria (TBC)****. This research was guidance of Dr. Riries R, ST.MT. and Winarno, S.Si. MT., Department of Physics, Faculty of Science and Technology, Airlangga University, Surabaya.*

ABSTRACT

This research was conducted to design an Autofocus microscope with a histogram method that can observe Tuberculosis (TB) bacteria. The bacteria observed were preparations or phlegm preparations which had been stained with Ziehl Neelsen. The microscope is designed to be equipped with a program to control the focus motor that moves the microscope tube and the program to digitally display the image and histogram of TB bacteria. Histograms are analyzed based on intensity values spread between 0-255 and the entropy value is sought. The measurement results that have been carried out as many as 20 times the field of view of the TB bacteria show that the most focused areas have the highest entropy value with an accuracy level ranging from 81.90476% to 100% at 1000 times the magnification.

Keywords: Autofocus Microscope, Tuberculosis (TBC), Histogram, Entropy.