

## Examination of acid-fast bacillin in sputum using modified light microscope with homemade light emitting diode additional attachment / Aryo Tedjo, Anis Karuniawati, Prawoto, Subari A. Riyanto, Anwar S. Ibrahim

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### Abstrak

Typical clinical symptoms and chest X-ray is a marker of Tuberculosis (TB) sufferers. However, the diagnosis of TB in adults should be supported by microscopic examination. Currently, Bacilli microscopic examination of acid-fast bacilli (AFB) in sputum by Ziehl-Neelsen (ZN) coloring is the most widely used. However, for reasons of convenience, especially for laboratories with a considerable amount of smear samples, and due to higher sensitivity compared with ZN staining, the World Health Organization (WHO) has recommended the use of auramine-O-staining (fluorochrome staining), which is visualized by light emitting diode (LED) fluorescence microscopy. The aim of this study was to evaluate the performance of modified light microscope with homemade LED additional attachment for examination of AFB in sputum using auramine-O-staining method. We compared the sensitivity and specificity of 2 kinds of AFB in sputum methods: ZN and fluorochrome, using culture on Lowenstein-Jensen media as the gold standard. The results showed auramine-O-staining gives more proportion of positive findings (81%) compared to the ZN method (70%). These results demonstrated that the sensitivity of auramine-O-staining was higher than ZN, however it gives more potential false positive results than ZN. The sensitivity of auramine-O-staining in detecting AFB in sputum was 100% while the specificity was 88%.