

CHAPTER V

DISCUSSION AND CONCLUSION

Discussion

The incubation time showed the most effect to the directed MTT result which significantly differed between the direct and indirect MTT methods. In 7 days of incubation time, they showed low sensitivity (17.86%) for resistance and 75.79% for susceptibility, while they were high sensitivity (100%) for resistance and susceptibility as in indirect and proportion methods when prolonged the incubation time to 14 days as shown in Table 8. The other factor was the beginning number of bacteria which affected to the test. Because strong AFB positive (AFB2+/AFB 3+) showed similar results with the indirect MTT method in both incubation times of 7 days and 14 days. This result supported that the number of bacteria affected the test. In the event doctors need rapid drug susceptibility test (DST) and to reduce turnaround time of cultures, they should use direct clinical specimens with AFB grading 2+ to 3+.

Since the drug susceptibility testing using MTT assay (Foongladda, 2005) have high sensitivity and specificity, this method is suitable for a rapid diagnostic and treatment. Then, this study aimed to modify this method by detecting in direct clinical specimen. This study started by optimization the volume of specimens in each test. The volume of specimens in directed MTT assay was used 500 µl for the test. The main reason of this test could be effect from the number of AFB positive in each specimen. Therefore it was effect to the final drug concentration which differed from the MTT kit, indirect MTT and proportional method (decrease in 5 fold of drug concentration as shown in Table 9). The result from this test showed low sensitivity both of resistance and susceptible result. Whereas, All of them normally used 100 µl contained colony age 3-4 week for the test which much a viability of *M. tuberculosis* more than direct specimen. For the next time, it could be concentrated the volume form 500 µl into 100 µl in testing for drug concentration comparison of the original MTT assay or the proportional method.

Therefore, the direct MTT method could be used with direct clinical specimens and 14 day incubations. It should be test in the same volume with indirect and proportion method. If the test used the same volume the result could be showed more reliable when comparison with indirect and proportion. However this method needs a highly experienced specialist to properly conduct the test.

Conclusion

In conclusion, these findings showed that we can use the direct clinical specimens in MTT assay which enable a rapid drug susceptibility test with an incubation time of 14 days.

It should benefit for the direct clinical specimens with AFB grading 2+ to 3+ which reduce turnaround time in no used culture in the test.