

Sensitivity of TLA compared to MGIT 960 for rapid and early detection of *M. tuberculosis* in clinical samples

Anandi MARTIN^{1,2}, Junko NAKATSUKA², Kristien EGGERMONT¹, Jaime ROBLEDO³, Francis VARAINE², Juan Carlos PALOMINO¹, Françoise PORTAELS¹

¹Institute of Tropical Medicine, Antwerp, Belgium; ²Médecins Sans Frontières, Paris, France; ³Corporación para Investigaciones Biológicas, Medellín, Colombia

Introduction:

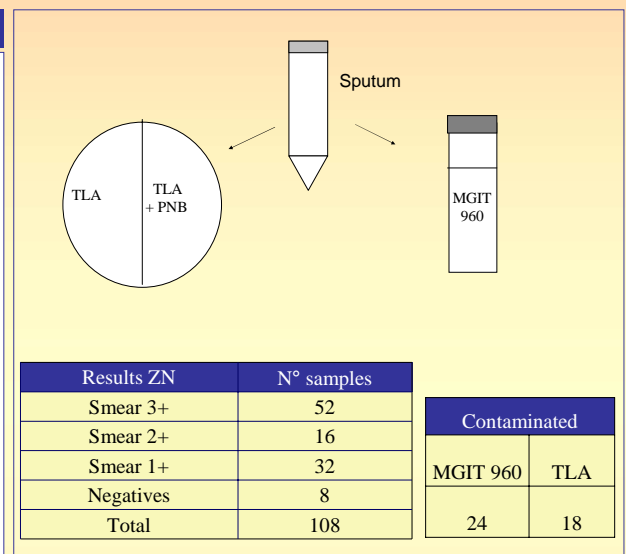
Conventional culture of clinical samples on Löwenstein-Jensen (LJ) medium is more sensitive than smear microscopy, but requires several weeks to give results while the more rapid commercial MGIT 960 liquid culture is too costly and not available in laboratories where economical resources are limited. Thin Layer Agar (TLA) uses a solid medium and is based on microscopic detection of early mycobacterial growth.

Objective:

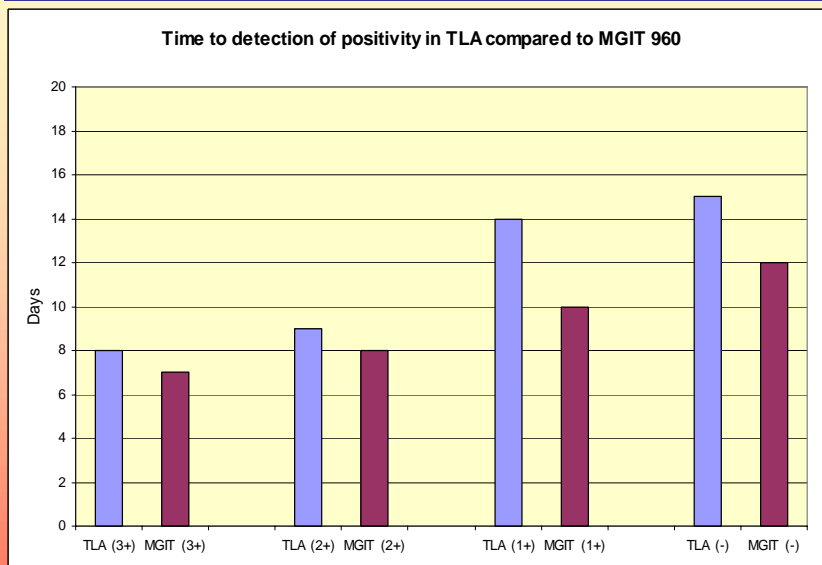
To compare the sensitivity and the time to detection of growth in TLA compared to MGIT 960.

Material and Methods

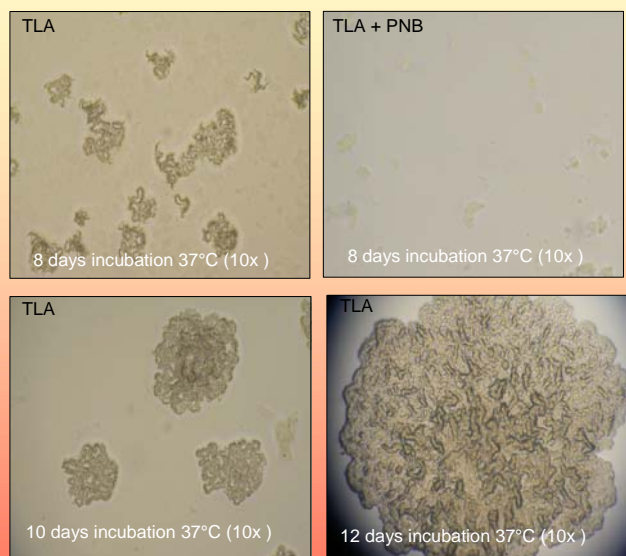
- Decontamination of samples by Petroff method (NaOH-HCl)
- Inoculation: 500 µl of the decontaminated sample in MGIT 960
100 µl on TLA plate and 100 µl on TLA+PNB
- The plates were closed with parafilm and incubated at 37°C in 5% CO₂
- Plates were observed twice a week to detect growth using a conventional microscope (10x).
- Growth on TLA is compared with growth on TLA+PNB (PNB inhibits the growth of *M. tuberculosis* complex).
- Growth of *M. tuberculosis* complex on TLA in the first few days appears as cords. At the same time the inoculum on TLA+PNB does not show any cord formation.
- The positivity of the MGIT 960 was recorded for each sample.



Results



Pictures TLA



Conclusions:

TLA is able to detect growth within 9–14 days and MGIT 960 between 7-12 days. The advantage of TLA is that it also identifies at the same time *M. tuberculosis* complex on the basis of its colony morphology and the PNB, while the MGIT 960 requires another method (biochemical or molecular) to identify *M. tuberculosis* complex. TLA is a rapid and inexpensive method compared to MGIT 960.