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ABSTRACT BOOK

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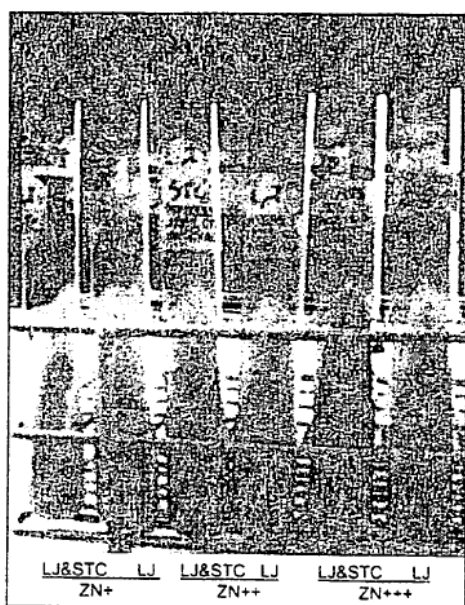
PS-81879-18 Tuberculosis diagnosis is accelerated by incorporating the colorimetric indicator STC in culture media

J I Alvarado,^{1,2} W Quino,¹ R H Gilman,^{1,2,3} E S Ramos,¹ B A Herrera,¹ S Shell,⁴ R Montoya,^{1,2} R Sosa,^{1,2} G Sandhu,⁵ A Curatola,^{1,2} J Alva,^{1,2} C A W Evans,^{1,3,5} ¹Laboratorios de Investigación y Desarrollo, Facultad de Ciencias, Universidad Peruana Cayetano Heredia, Lima, ²Asociación Benéfica Prisma, Lima, Peru, ³Johns Hopkins Bloomberg School of Hygiene and Public Health, Baltimore, Maryland, ⁴University of California San Diego School of Medicine, La Jolla, California, USA; ⁵Wellcome Centre for Clinical Tropical Medicine and Department of Infectious Diseases and Immunity, Imperial College London, London, UK. Fax: (+51) 1 616 5501. e-mail: cartonevans@yahoo.com

Background: Worldwide, TB diagnostic culture is most often done on solid media on which TB growth takes several weeks to become visible, delaying patient diagnosis. STC (2,3-diphenyl-5-thienyl-(2)-tetrazolium chloride) is a reduction-oxidation indicator that is stable in incubators and changes colour when microorganisms grow.

Objective: To evaluate the utility of STC for TB culture diagnosis.

Methods: Löwenstein-Jensen (LJ), Ogawa and Middlebrook 7H10 culture media were prepared with and without 50 µg/ml STC. Sputum samples with Ziehl Neelsen (ZN) smear microscopy grades +, ++ and +++ were decontaminated using the n-acetyl cysteine sodium hydroxide method. Sputum samples and also laboratory isolates of TB strains were inoculated onto the media in parallel in a blinded manner. Cultures (*n* = 114) were examined by naked eye three times per week and speciation was determined by colony morphology. Days to culture positivity and colony count means (standard error, SE) were compared with the Wilcoxon signed-rank test.



Results: The bright red coloration of the STC-containing media surrounding colonies facilitated iden-

tification of positive cultures (photograph). STC accelerated the visualization of TB growth on LJ medium by 7.2 (SE 1.3, $P = 0.007$) days, on Ogawa medium by 6.4 (SE 1.0, $P = 0.005$) days and on 7H10 medium by 2.4 (SE 0.78, $P = 0.001$) days. Average times to TB detection without STC were 20, 25 and 17 days for LJ, Ogawa and 7H10, respectively. Bacterial or fungal contamination also caused colour change, but colony morphology distinguished this from TB growth. Cultures were interpreted without being opened, enhancing bio-safety. There was no augmentation or inhibition of TB colony counts or positivity by STC.

Conclusions: The colorimetric indicator STC increased the speed and ease of the most widely used tuberculosis culture techniques. We are testing STC for concurrent colourimetric multidrug-resistant TB testing and in MODS broth culture.