

CHARACTERIZATION OF *MYCOBACTERIUM AFRICANUM* SUBTYPE I AMONG COWS IN A DAIRY FARM IN BANGLADESH USING SPOLIGOTYPING

Zeaour Rahim¹, Marius Möllers², Arianne te Koppele-Vije³, Jessica de Beer³, Khadiza Zaman¹, MA Matin⁴, M Kamal⁵, Rubhana Raquib¹, Dick van Soolingen⁶, MA Baqi⁷, Frank GC Heilmann³ and Adri GM van der Zanden³

¹International Center for Diarrheal Disease Research, Bangladesh, Dhaka, Bangladesh; ²Department of Pneumonology, ³Medical Laboratories, Department of Medical Microbiology and Infectious Diseases, Gelre Hospitals, Apeldoorn, The Netherlands; ⁴Microbiology Laboratory, Department of Botany, University of Dhaka, Bangladesh; ⁵Department of Pathology, Bangobandhu Sheikh Mujib Medical University, Dhaka, Bangladesh; ⁶The National Mycobacteria Reference Laboratory, The Netherlands; ⁷Central Disease Investigation Laboratory, Dhaka, Bangladesh

Abstract. Acid-fast bacilli (AFB) were detected in the autopsy lung tissue homogenate samples of four cows (variety Frisian cross) in a dairy farm in Bangladesh. Histopathological examination of the lung tissue demonstrated prominent granulomas, caseating necrosis and calcification indicative of tuberculosis (TB) infection. Mycobacteria could not be cultured from the tissue homogenate samples by Lowenstein-Jensen based conventional culture method though AFB were evident by Ziehl-Neelsen (ZN) staining of the smears of tissue homogenate and in paraffin embedded tissue slices. Spoligotyping performed on DNA extracts of paraffin embedded lung tissue samples confirmed the AFB as a member of the *M. tuberculosis* complex (MTBC) with a pattern assigned to *M. africanum* subtype I. This characterization by spoligotyping was confirmed by subjecting *M. africanum* subtype I isolates from other parts of the world to an alternative identification method based on DNA polymorphism in the *gyrB* gene (Hain Life Science, GmbH, Nehren, Germany). Since *M. africanum* is believed to be a human pathogen, general infection in cattle may be a public health threat. The presence of these bacteria in the animal reservoir most likely originated from a caretaker.

Correspondence: Adri GM van der Zanden, Medical Laboratories, Department of Medical Microbiology and Infectious Diseases, Gelre Hospitals, Location Lukas, Albert Schweitzerlaan 31, PO Box 9014, 7300 DS Apeldoorn, The Netherlands.
Tel: 31 55 581 8560; Fax: 31 55 581 8559.
E-mail: agm.vd.zanden@gelre.nl