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Mycobacterium orygis: Emerging causative agent of tuberculosis in cattle in Bangladesh

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Bangladesh is one of the tuberculosis (TB) endemic countries of the world. National TB control program has proper attention on human TB, but TB in cattle is neglected. In this study, vital organs of the dead cows were analyzed after postmortem to isolate and identify *Mycobacterium* from the vital organs of the dead cows, perform drug susceptibility testing and genotyping of isolates. After post-mortem, part of the tissue samples from vital organs was processed for histopathological examination. For culture, tissue homogenate samples were inoculated on Lowenstein-Jensen slants. Characteristic colonies were confirmed *Mycobacterium* by acid-fast staining and colony morphology. Anti-TB drug sensitivity testing was performed following proportion method. For molecular characterization, DNA was extracted from the culture of *Mycobacterium* for RD analysis, single nucleotide polymorphism for genes like; gyrB, mmlp6, TbD1 and PPE55 genes. Genotyping was performed by standard spoligo and VNTR-MIRU typing. Histopathological examination, demonstrated prominent granuloma, caseous necrosis and calcification as proof of TB. *Mycobacterium* grew from the vital organs of 18 out of 21 dead cattle. AFB staining, sensitivity to PNB indicated that the strains belong to *M. tuberculosis* complex. Molecular characterization indicated that these strains belong to new species *M. orygis*. Isolated strains were sensitive to all first line anti-TB drugs. *M. orygis* is an emerging species of *Mycobacterium* causing cattle TB. Detailed epidemiological study of *M. orygis* needs to be conducted to control this disease. Sensitivity to all first line anti-TB drugs indicated that human infection with this *TB-bacillus* could be successfully treated with anti-TB drugs.

Biography

Zeaur Rahim is a citizen of Bangladesh. He is a Microbiologist. After completion of Master degree in Biological Science, he became affiliated with icddr,b as Research Trainee for a period of three years since the year 1981. During his long career at icddr,b Dr. Rahim obtained training in the field of Water Bacteriology, Diarrhoeal Disease and finally Tuberculosis. In the year 2001, Dr. Rahim established Tuberculosis Laboratory at icddr,b to set up conventional culture and susceptibility testing of *M. tuberculosis*. Dr. Rahim published 75 papers in peer reviewed bio-medical journals and associated with different journals as reviewers manuscript.

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