

GLOBAL MEDICAL MICROBIOLOGY SUMMIT & EXPO

November 28-29, 2016 San Francisco, USA

Molecular characterization of multidrug-resistant *Mycobacterium tuberculosis* isolated from different hospitals in Kathmandu Valley

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Tuberculosis (TB) is one of the deadliest and common major infectious diseases in developing and industrialized countries. Global TB control efforts have been severely hampered by the lack of diagnostic tests that are rapid, accurate, simple to use and can be applied at the point of clinical care. A total of 238 isolates from Kathmandu valley were tested for drug resistance. Extracted DNA was processed for Multiplex Allele Specific Polymerase Chain Reaction (MAS-PCR) for the detection of TB by using MPB64 and IS6110 primers and later mutation in *katG* and *rpoB* was detected using specific primers for drug resistance patterns. Out of 238 suspected cases, MAS-PCR was found to be positive for 35 (14.70%) isolates. Among 35 positive isolates, *rpoB*526 mutation and *katG*315 mutation was found in 5 (14.29%) and 3 (8.57%) isolates respectively. Two (5.71%) isolates showed resistance to both *rpoB* and *katG* confirming the multidrug resistant (MDR) tuberculosis. The use of these assays in the clinical setting would significantly reduce the time to diagnosis of MDR tuberculosis, enabling the administration of appropriate treatment regimens at the outset of therapy and to estimate the economic and disease burden of tuberculosis which is essential to inform health policy, increase disease awareness and assess the impact of tuberculosis control technologies.

Biography

Sagar Aryal has completed his Master's degree in Medical Microbiology from St. Xavier's College, Kathmandu, Nepal. He is currently working as a Teaching Assistant at St. Xavier's College, Kathmandu, Nepal. He has published more than 10 papers in reputed journals and has been serving as the Founder and Executive Editor of *International Journal of Microbiology and Allied Sciences (IJOMAS)*.

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