

## Isolation and Characterization of Mycobacterium from Pulmonary Tuberculosis Patients in Thanjavur, Tamilnadu

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### ABSTRACT

A total of 50 symptomatic patients (35 male and 15 female) suffering from various symptoms like chronic cough, fever and weight loss have undergone different standard tests such as Acid-fast staining (AFB), culture (Lowenstein - Jenesen) and biochemical examinations. 10 isolates (CCU-23, CCU-334, CCU-20, CCU-142, CCU-93, CCU-102, CCU-2, CCU-3, CCR-1 and CCR-4) were slow growers. Growth was scraped and DNA was isolated. It was observed that RFLP pattern of biochemically identified isolates of *M. tuberculosis* matched with the standard strain of *M. tuberculosis* (H37 Rv). This technique appears to be useful to distinguish growing *M. tuberculosis* and provides sufficient information to identify most clinically important mycobacterial species and sub-species.

**T**uberculosis is a chronic granulomatus disease affecting humans and mammals. It is a major public health problem in India and several parts of the world. Tuberculosis involves all the organs of the body; however lungs are commonest site to be involved. *M. tuberculosis* is supposed to enter through lymphoid aggregates in the tonsil and adenoids and hence in upper deep cervical lymph nodes.

The father of medicine describe tuberculosis accurately as a lingering disease progressive debilitating with increasing emaciation, purulent sputum, fever, hamoptysis, terminated diarrhea and death. Improved cases detection and effective treatment are two keys factor required to better control mycobacterial disease. Elimination of tuberculosis in a community depends on our ability to eliminate it from individual patient as the source of almost all infection. The occurrence of outbreak multidrug resistance in AIDS patient if alarming (Edlin *et al.*, 2000; Shah *et al.*, 1995). HIV +ve patient infected with *M. tuberculosis* have a 50 time life risk with equal risk of around 7-10% of developing tuberculosis, which is many times greater than that of HIV-ve patient (Anonymous, 2002).

### MATERIALS AND METHODS

#### *Study design and population:*

Subjects hailing from the out patient (OP) tuberculosis services at the Raja Mirasudar

Hospital (RMH), Thanjavur, Tamilnadu, India were included in the study. This study was conducted between December 2008 to February 2009. People between 10 and above 60 years were considered. The population under study were people suffering from chronic fever, cough and weight loss.

#### *Collection of sputum:*

For diagnosis of tuberculosis, three specimens of sputum were examined over a period of two days. Specimens were collected in sterile universal containers, which had a fixed label for noting patient's information on the side of the container. The specimen was collected in an aerosol free container. An ideal sample volume was about 5 ml and a minimum of 3 consecutive sputum specimens were collected. Transportation of the specimen for culture was done in a sterile leak proof container within a period of 3 days. Sputum samples from TB patients were collected in properly sterilized disposable vials containing 2 ml of N-acetyl pridium chloride (CPC) as preservative solution.

#### *Methods for diagnosis of mycobacteria:*

Various methods are available to identify the *Mycobacterium tuberculosis* which are conventional (microscopy) (Katoch and Shanna, 1997), colony forming units, culture, biochemical tests—Catalase, nitrate reduction test, arylsulphate test, tween -SO hydrolysis,

#### **Key words :**

*M. tuberculosis*, Gene amplification-PCR and pulmonary tuberculosis.

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