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Letter to Editor

Tsukamurella spp. are Neglecting Bacteria

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Tsukamurella that have mycolic acid (chemo type IV) have been classified as a major genus in aerobic actinomycetes families [1]. The genus *Tsukamurella* are gram-positive, aerobic, partially acid-fast, nonmotile, noon spore forming bacteria with a series of very long chains and unsaturated mycolic acid which are saprophytic lives in environmental resources such as water, soil and dust; Therefore *Tsukamurella* spp. can enter the human via inhalation or cutaneous damage and cause of mycetoma, pulmonary infection (like tuberculosis), meningitis, peritonitis, keratitis, conjunctivitis, brain abscess, acute otitis media, bacteremia and catheter-related infections [2-4]. *Tsukamurella* infection are usually sporadic and people with immunodeficiency virus (HIV), transplant recipient and people who are consuming immunosuppressive drugs are most important hosts for this infection [4,5].

Tsukamurella was introduced by Collins and colleagues in 1988 whereas this group of bacteria were isolated prior in 1941 by Steinhaus., *et al.* from the mycetomes and ovaries of bed bugs (*Cimex lectularius*) as *Corynebacterium paurometabolum*; but presence of unsaturated mycolic acid 68 - 76 carbon can be used for differentiation of *Tsukamurella* from *Corynebacterium* [4]. So far, the genus *Tsukamurella* comprise of 17 different species that nine species of this genus have isolated from human infections including: *Tsukamurella inchonensis*, *T. paurometabola*, *T. strandjordii*, *T. tyrosinosolvens*, *T. pulmonis*, *T. hongkongensis* and *Tsukamurella sinensis* [4,6].

Tsukamurella spp. are usually misidentified as Non-tuberculosis *Mycobacteria* (NTM), *Nocardia* and *Rhodococcus* [7]; *Tsukamurella* species was identified by phenotypic methods (such as Gram and Kinyoun stains, colony morphology, resistance to lysozyme, pyrazinamidase activity, lack of aerial hyphae, growth in 25 - 35ºC, oxidase, catalase, nitrate reductase, lipase, hydrolysis of tween 80, tyrosine, urea, aesculin, casein, adenine, xanthine, hypoxanthine and carbohydrates utilization as carbon source), analysis of fatty acid and mycolic acid cell wall and molecular techniques including direct sequencing (16S rRNA pair primers: 27F:5′-AGAGT TTGATCMTGGCTCAG-3′ and 1525R:5′-AAGGAGGTGWTCCARCC-3′ and *groEL* by using the two primers: TB11:5′-ACCAACGATGGTGTGTCCAT-3′ and TB12:5′-CTTGTCGAACCGCATACCCT-3′ and PCR-RFLP using housekeeping genes [4,8,9]. Diagnosis based on the conventional tests are time-consuming, expensive and need to standardization and expertise technicians while molecular methods using housekeeping genes (16Sr RNA and *hsp65*) are simple, effective and can properly identified *Tsukamurella* spp. from other aerobic actinomycetes [10,11].

The best method for antibiotic susceptibility test of *Tsukamurella* spp. is micro-broth dilution method (based on the recommendation of Clinical and Laboratory Standards Institute (CLSI)). Given that limitation of information about of anti-drug susceptibility of the genus *Tsukamurella*, Susceptibility testing is necessary for *Tsukamurella* infections; according to the lack of information on the treatment of *Tsukamurella* infections, the combination of beta-lactam or macrolide with aminoglycoside antibiotics used of various antibiotic agents has recommended for treatment of this infections [4,12].

Conflict of Interest

Nil.

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