

Isolation of *Proteus Mirabilis* from Microwave Treatment of Medical Waste Associated with Urinary Infection

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Abstract

Proteus mirabilis is a clinical pathogen harbouring antibiotic resistance genes and has been identified to cause various healthcare-acquired infections in immunocompromised patients. This study aimed to isolate pathogenic bacteria *Proteus mirabilis* from microwave pre-treated medical waste. A 100 µL of serially diluted medical waste sample was cultured on Luria Bertani (LB) agar containing ampicillin, and the presumed colonies of *P. mirabilis* were extracted using FastDNA Stool Mini Kit, followed by species identification *via* Sanger sequencing. Antibiotic resistant bacteria were successfully cultured, and the swarming behavior was observed on the surface of culture medium. The sequence reads generated from Sanger sequencing compared against reference sequences in NCBI database confirmed that the isolates was *P. mirabilis* with 99% percentage identity. The presence of antibiotic-resistant *P. mirabilis* isolated from microwave pre-treated medical waste indicated the microwave had minimal effect in eliminating antibiotic resistant bacteria in medical waste. This study also highlights the potential risk of antimicrobial resistance transmission when improperly handled medical wastes are discharged into the environment. Thus, the discovery of pathogenic *P. mirabilis* from medical waste necessitated public attention to improve medical waste management.

Keywords: *Proteus Mirabilis*; Pathogen; Medical waste; Microwave; Antibiotic resistance.