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The Identification of *Bacillus* Endospore Strain 6114-RSMD Based on 16SRDNA and Anti-Nosocomial Bacteria Activity

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Abstract : Nosocomial is the harmful bacterial infection caused by Multi-Drug Resistance (MDR) that able to produce extended-spectrum beta-lactamase (ESBL) or methicillin-resistant *Staphylococcus aureus* (MRSA) that able to infect a human. One of the strain *Bacillus* endospores was discovered among others nosocomial bacteria community at the Mitra Delima Hospital, Malang, East Java. The previous study based on phenotypic identification concludes that the strain was scientifically identified as *Bacillus* endospore strain 6114-RMSD. The aims of this study were to further identify 6114-RMSD strain, discovered in Mitra Delima Hospital, using 16SrDNA and to determine its anti-nosocomial bacteria activity. The methods in this study were DNA isolation and amplification; 6114-RMSD growth curve assay, and 6114-RMSD cell-free supernatant (CFS) extraction; CFS anti-nosocomial activity test using diffusion and broth dilution method to nosocomial pathogens, MRSA, *Escherichia coli*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa*; and CFS protein profiling by SDS-PAGE. Based on 16SrDNA identified that 6114-RMSD was *Bacillus amyloliquefacien*. The CFS of 6114-RMSD protein has anti-nosocomial activity potential like amoxicillin. The protein profile contained 14-71.90 kDa proteins which best growth in TBS medium and best harvested after 96 h. CFS 14 kDa protein had significant potential to inhibit nosocomial bacteria growth compared with crude CFS and amoxicillin.

Keywords : 16SrDNA identification, anti-nosocomial activity, *Bacillus* endospore, nosocomial bacteria.

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