

UNIVERSITI TEKNOLOGI MARA

**CHARACTERIZATION AND CONFIRMATION OF
Lactobacillus spp. ISOLATED FROM DAIRY
PRODUCTS: BIOCHEMICAL, PROBIOTIC
POTENTIAL AND MOLECULAR STUDY**

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DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

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ABSTRACT

For half a century, the global community had been highly dependent towards antibiotic as a treatment against bacterial infection, give arise to new form of mutate organism capable of resisting against several type of antibiotics. Ceaseless demand for an alternative of antibiotic is highly sought to overcome such issue. *Lactobacillus spp.* was a type of Lactic Acid Bacteria (LAB) which are well-known for their probiotic potential towards human health. However, in Malaysia, information regarding this organism are still deficient due to limited amount of research conducted. In an attempt to gain information about this matter, the characterization and confirmation study of *Lactobacillus spp.* isolated from dairy product and their probiotic potential by using molecular and biochemical method was conducted. The aims of this research was actually to identify and characterize the biochemistry, tolerance to bile and antibiotic susceptibility profiles of putative *Lactobacillus spp.* isolated from dairy products and further confirm whether the isolates of *Lactobacillus spp.* belonged from amplified 16S rRNA gene. Eleven (11) isolates was isolated from two sources of sample; 8 isolates from goat's milk, 3 isolates from Tairu's Buffalo Milk. Each isolates was characterized by using biochemical test, while Bile Salt Tolerant and Antibiotic Susceptibility Test (AST) method was used for determination of potential probiotic property. A further confirmation was done by using Polymerase Chain Reaction (PCR) assay of 16S rRNA. Biochemical test showed 7 isolates have similar characteristics toward the *Lactobacillus spp.*, which are catalase and oxidase negative, Gram-positive rod organism and shown the same pattern in susceptibility of several antibiotic except for Vancomycin also have tolerance against 0.3% bile salt activity. These 7 isolates were further confirmed belonged to *Lactobacillus* genus as exhibited by 566 base pair (bp) amplicon. Based on the findings, it can be suggested that the putative *Lactobacillus* isolates have shown a promising potential as a probiotic organism.

Keywords: *Lactobacillus spp.*, PCR, Dairy Product, Probiotic