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Research Article

Molecular Identification of Lactic Acid Bacteria from Black Soldier Fly Larvae Reared on Different Substrates

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Abstract | Usage of antibiotic growth promoters (AGP) in livestock causes certain antibiotic resistance. Probiotic may be used as an alternative for AGP by providing microorganisms that have a health benefit for the host. This study was to identify the molecular characteristics of LAB isolated from the digestive tract of black soldier fly (BSF) larvae on different substrates as probiotic candidates. The LAB from the digestive tract of BSF larvae in chicken manure and palm kernel meal substrates was isolated and taxonomically identified using the 16S rRNA sequence homology and molecular identification. The LAB isolates were also tested for antimicrobial and hemolysis activities. Five isolates from BSF larvae reared on chicken manure substrate and three isolates from BSF larvae reared on palm kernel substrate showed a gram-positive bacteria characteristic. The LAB isolates from BSF larvae reared on chicken manure and palm kernel meal substrate showed no different in inhibition zones against pathogenic bacteria (*E. coli* and *S. typhimurium*). All isolates showed no hemolysis activity. Three isolates (A3, A4, and B1) are molecularly identified as *Enterococcus faecalis* which showed a potency as probiotic candidate. We conclude that *Enterococcus faecalis* is a potential probiotic that can be isolated from BSF larvae.

Keywords | 16S rRNA Gene; BSF Larvae; Chicken Manure; Lactic Acid Bacteria; Palm Kernel Meal

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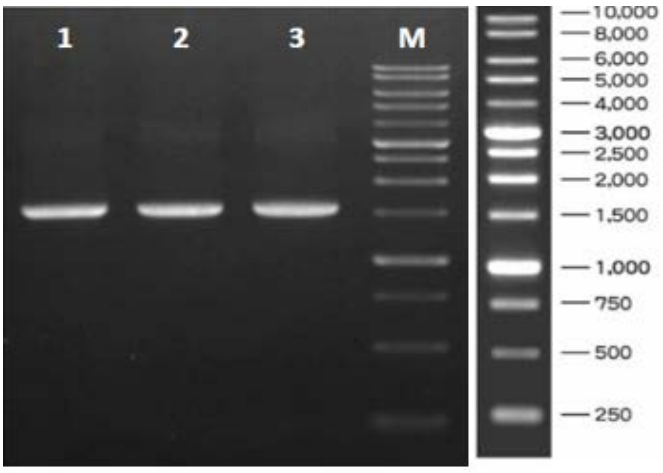

Supplementary file 2: Electrophoresis of DNA PCR with 0.8% gel agarose from 3 isolates. (1) A3 isolate (LAB isolate from BSF larvae in chicken manure substrate). (2) A4 isolate (LAB isolate from BSF larvae in chicken manure substrate). (3) B1 isolate (LAB isolate from BSF larvae in palm kernel meal substrate).

The gene was amplified by PCR followed by electrophoresis in 0.8% agarose gel to obtain a single band located at 1500 bp (Supplementary file 2).