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Isolation and Identification of Lactic Acid Bacteria from Honey of *Apis mellifera* Sold in Kuala Terengganu, Malaysia

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There are nearly 20,000 known species of bees in seven to nine recognized families, though many are undescribed and the actual number is probably higher. They are found on every continent except Antarctica, in every habitat on the planet that contains insect-pollinated flowering plants. Bees honey obtain all of their nutritional requirements from a diverse combination of pollen and nectar. Pasar Payang has been a major attraction to tourists and local people to buy local food and groceries including honey. The objective of this study was to isolate and identify lactic acid bacteria (LAB) from honey of *Apis mellifera* that sold in Pasar Payang, Kuala Terengganu.The isolation of LAB from these samples was performed using MRS agar, MRS agar with 0.8% $CaCO_3$ and MRS with 1% glucose. Colonies were purified with a streaking method followed by morphological and biochemical analysis using Gram staining, catalase test and oxidase test. These isolates were further characterised phenotypically using API 50 CHL. The six spesis of lactic acid bacteria were confirmed as *Lactobacillus casei, Lactobacillus plantarum, Lactobacillus delbrueckii* subs. *bulgaricus, Lactobacillus mucosae* and *Weseilla confuca*. All strain were more than 87 % similarity to various species of LAB. Some microorganisms have ability to produce enzyme to help the quality of the honey strains LAB were tested for enzyme detection using API ZYM. Three selected strains (strain 01, 03 and 04) of LAB were tested for their enzyme activity using API ZYM. Result show that those three strain may exhibitit more than one of the following enzyme which is esterase, protease, glucosidise and valine aminopeptidase. All seven strains showed that antimicrobial activity against the ten pathogens were generally had low inhibition effects against the pathogens. Then, LAB were tested on their antibiotic based on the common antibiotic used in medical practise and health theraphy. In conclusion, this study confirmed the presense of LAB and their antimicrobial, enzyme detection and antibiotic resistant were evaluated.