

Weissella sp.Taj-Apis, a novel lactic acid bacterium isolated from honey

Abstract

During a study on lactic acid bacteria from giant honey bee *Apis dorsata* colonies in different bee trees during honey flow season between January and March in the highland of Pedu Lake District, located in the northern state of Kedah at the north of Malaysia, a Gram-positive, short, catalase negative, nonmotile, irregular, rod-shaped new strain of *Weissella* was isolated from honeycombs using selective media. This isolate had identical biochemical reactions. The 16S rRNA genes from extracted DNA of bacterial colonies were amplified with polymerase chain reaction (PCR) using universal primers (27F and 1492R). A phylogenetic analysis on the base of 16S rRNA gene sequences presented that novel *Weissella* sp. named Taj-Apis represented a different lineage near to the genus *Weissella* and showing only 90% 16S rRNA gene sequence similarity with respect to their nearest neighbor of *Weissella* sp. PSMS4-4 and deposited in GenBank. *Weissella* species have been isolated from a diversity of sources and some of them play significant roles in fermentation. However, the sequences had remarkable differences. Hence, this is the first investigation appraising the use of 16S rRNA sequence analysis for identification of known and new species of honeycomb *Weissella* of giant honey bee *Apis dorsata* obtained from Malaysia. Our findings would serve as a basic and fundamental data for the bacteria and provide general knowledge about the characteristics of the microorganisms in honeycomb for their importance in human gastrointestinal tract health. This is the first case report of *Weissella* sp. associated with honey bee of *Apis dorsata* in the world.

Keyword: Novel lactic acid bacteria; *Weissella* sp. Taj-Apis; Honey bee; *Apis dorsata*; Honeycomb; Isolation; Identification; DNA extraction; 16S rRNA gene sequence; Investigation