
Identification of Lactic Acid Bacteria Isolated From Fruits and Industrial Byproducts of Fruits Through the MALDI-TOF Technique

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Resumo

LAB strains with probiotic potential have been isolated from human and animal gastrointestinal tract, but it seems that plant matrices can be potential sources of these bacteria. An important aspect in research studies on LAB with probiotic potential is the use of a fast and effective preliminary method to identify genera of interest. The use of mass spectrometry (MS) by MALDI-TOF has shown efficiency and correspondence with reliable methods for bacterial identification. This work aimed to isolate lactic acid bacteria strains from fruits (mango and acerola) and byproducts generated in the industrial processing of fruit pulp and identify them through MS. After homogenization and dilution of each sample, an aliquot was inoculated on agar plates containing MRS and M17 agar, incubated at 37 and 30°C, respectively, under anaerobic conditions (48-72h). Colonies were evaluated for their morphological characteristics. Ten colonies of each morphological type were selected for initial identification (Gram positive and catalase-negative), and then submitted to MS identification using the MALDI Biotyper (Bruker) platform, which uses the Matrix Assisted Laser Desorption Ionization - Time of Flight technique (MALDI-TOF). Among the isolates obtained from acerola,

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Lactococcus lactis e *Lactobacillus plantarum* identified; among isolates obtained from acerola byproducts, *L. fermentum*, *L. plantarum*, *L. brevis* and *L. nagelii* identified. Among the isolates obtained from mango, *Leuconostoc mesenteroides*, *Pedococcus pentosaceus* and *L. nagelii* identified, while in mango byproducts, *L. plantarum*, *L. fermentum*, *L. nagelii*, *L. pentosus* and *Leuconostoc mesenteroides* found. About 60% of strains identified have satisfactory score to confirm genus and probable species, while 32% of strains showed equivalent score and probable genus, in agreement with other morphological features previously observed. The use of MALDI-TOF to identify LAB proved to be an effective method for the selection of strains of interest, but still requires confirmation of identification by molecular biology techniques.

Palavras-Chave: probiotic, mass spectrometry, *Lactobacillus*

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