Application of matrix-assisted laser desorption ionization time-of-flight mass spectrometry for identification of coagulase-negative staphylococci isolated from milk of cows with subclinical mastitis

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Abstract

The aim of this study was to use matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) for the identification of coagulase-negative staphylococci (CNS) isolated from the milk of cows with subclinical mastitis. The study material consisted of 33 isolates of CNS, identified by the results of API Staph tests, obtained from the milk of cows with subclinical mastitis. Based on the spectra analyses, MALDI-TOF MS tests of 33 bacterial samples allowed identification of the microorganisms in 27 cases (81.8%). The most frequent cause of subclinical mastitis was found to be Staphylococcus sciuri (39%), while S. vitulinus was detected in 15% of the milk samples. The results obtained indicate that MALDI-TOF MS can be used for the identification of CNS isolated from bovine mastitis as a method supplementary to biochemical tests.

Key words: coagulase-negative staphylococci, cows, MALDI-TOF MS, milk