

**TITLE:** USE OF MALDI-TOF IN THE IDENTIFICATION OF MICROORGANISMS ISOLATED IN BLOODSTREAM INFECTIONS OF PATIENTS IN A HOSPITAL OF SALVADOR-BAHIA

**AUTHORS:** ARRAES, A.C.P.; NUNES, T.J.C.; MENDES, A.V.; BARBERINO, M.G.

**INSTITUTION:** HOSPITAL SÃO RAFAEL (AVENIDA SÃO RAFAEL, 2152, SÃO MARCOS, CEP: 41253-190, SALVADOR - BA, BRAZIL)

**ABSTRACT:**

Bloodstream infection (SBI) is considered one of the most common in hospitalized patients, especially in intensive care units, being one of the leading causes of mortality in the world, with rates of up to 55%. Up to 19 million cases worldwide are reported per year, accounting for one of the major causes of morbidity and mortality, especially when effective antimicrobial therapy is not readily administered. Due to the priority to minimize the identification time of the microorganisms, new methodologies based on molecular biology have been developed, but are considered limited and high cost. MALDI-TOF (Matrix-Assisted Laser Desorption Ionization – Time of Flight), which uses mass spectrometry, is a revolutionary methodology for identification of clinically relevant microorganisms including bacteria and fungi. In this sense, the aim of this study was to evaluate the prevalence of microorganisms isolated in blood cultures of patients with bloodstream infection at Hospital São Rafael, Salvador-Bahia-Brazil. A total of 4185 bottles of positive blood cultures in BacT / ALERT®3D (bioMérieux-Marcy l'Etoile, France) were analyzed retrospectively in the period of January 2014 to December 2016. After positivation, the samples were submitted to Gram staining and culture in solid media for identification of the microorganism in VITEK-MS (MALDI-TOF / bioMérieux-Marcy l'Etoile, France). We can observe that Gram positive represented the majority of isolates (46.7%), followed by Gram negative (36.6%), Fungi (9.4%) and Anaerobie (0.3%). The methodology allowed the identification of some microorganisms considered to be uncommon and fastidious (7.0%), including 2 belonging to the HACEK group and some considered rare pathogens, but with clinical relevance because they are isolated in infections of immunocompromised patients, in addition to yeast fungi species of great clinical importance, such as *Candida*, *Trichosporon* and *Cryptococcus*. The precise and rapid identification of the microorganisms involved in SBI is an important tool to assist in the selection of adequate antimicrobial therapy, reducing potential adverse events. The use of MALDI-TOF based on the detection of ribosomal proteins allowed the identification of different microorganisms, at the level of genus and species, that previously only the use of traditional molecular biology could provide.

**Keywords:** MALDI-TOF, identification, bloodstream infection, mass spectrometry

**Development Agency:**