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Poster Session II
Leishmania and Trypanosoma

MALDI-TOF MASS SPECTROMETRY FOR THE RESEARCH OF SPECIFIC BIOMARKERS OF LEISHMANIA INFECTION BY ANALYSING STRAINS ISOLATED FROM BIOLOGICAL SAMPLES.

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Objectives. Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry(MALDI-TOF MS) recently emerged as a first-line method for the accurateidentification of bacteria, but few data are available for protozoa.We investigated the potential role of MALDI-TOF MS for the rapid identification of specificbiomarkers of *Leishmania* spp. byanalysing strains isolated in our laboratory from clinical samples.

Methods. In this study, we used a *L. major* strain 1174 tofind specific biomarkers able to identify *Leishmania*species directly in culture medium. This strain was isolated in our laboratory from the skin biopsy of apatient with suspected cutaneous old world leishmaniasis and it was characterized as *L.major* by analysis of isoenzymes. *Leishmania* spp. strain 1585, isolated in ourlaboratory from the skin biopsy of a patient with suspected cutaneous old worldleishmaniasis was identifiedas a *Leishmania* spp. by specific18S-rDNA Real-time PCR and showed the same melting peak as strain 1174; thisstrain was used to verify the presence/absence of the same biomarkers of strain1174.

Aliquots of cultures of these strains in Evan'smodified Tobies's medium were submitted to formic acid/acetonitrile protein extraction.The spectra obtained with the instrument Microflex LT massspectrometer (Bruker Daltonics, Germany) wereanalyzed and subsequently imported into the ClinProTools software version 2.2(Bruker Daltonics, Germany) to carry out a statistical analysis in order toverify the presence of specific peaks.

Results. The 2 strains yielded a protein profilewhich was found to be reproducible over several, independent experiments and nodifferences were observed when strains were grown in different lots of media. Theprofiles obtained for each of the 2 strains analyzed in this study showed thepresence of 2 specific peaks (9,692 and 11,184 Da) that were not present in Evans'medium used for their cultivation.

Conclusion. The detection of the same 2 peaks in the 2 strains(absent in the culture medium) may be usefulfor the identification of *Leishmania* strainsisolated from biological samples by MALDI-TOF MS. Our future goal will be to analyse severalother *Leishmania* spp. strains availablein our laboratory in order to detect the presence/absence of species-specific biomarkersfor a possible identification of isolated strains directly from biologicalsamples.