

P2406 **Evaluation of non-tuberculous mycobacteria identification with MALDI-TOF Mass Spectrometry by applying sonication: a multi-center study**

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**Background:** The capacity of MALDI-TOF MS to identify Non-Tuberculous Mycobacteria (NTM) has improved in the last years, greatly due to the enhancements in the available databases and the sample processing. In this study, 14 laboratories -with high expertise using MALDI-TOF MS- from 10 EU countries have evaluated the implementation of a sonication step in the sample processing prior to MALDI-TOF MS analysis.

**Materials/methods:** Forty-nine NTM isolates (19 Rapid Growing Mycobacteria isolates from 6 species and 30 Slow Growing Mycobacteria isolates belonging to 9 species) grown on Löwenstein-Jensen medium were blindly analyzed. Biomass was collected in tubes containing 300 µl water and 900 µl ethanol and sent out to the participating laboratories. In 12 research centers the samples were sonicated according to protocol published by O'Connor et al (2016), and the remaining two laboratories applied the Myco-EX protocol recommended by the manufacturer (Bruker Daltonics). All laboratories used benchtop MALDI-TOF mass spectrometers (Bruker Daltonics) for protein spectra acquirement.

**Results:** Sonication allowed a reliable identification of all the NTM isolates with an average score value  $\geq 1.8$  in 53.8% of the laboratories. Only 3 isolates (*M. fortuitum*, *M. septicum* and *M. simiae*) were unreliably identified by three different laboratories and other 3 laboratories reported no peaks for slow-growing NTM isolates -*M. avium* (n=2), *M. europaeum* (n=3), *M. gordonae* (n=3), *M. intracellulare* (n=7), *M. marinum* (n=1), and *M. simiae* (n=1)-. Besides, the implementation of the sonication step yielded higher score values for rapid growing NTM species in comparison with the Myco-EX protocol.

M. abscessus and M. fortuitum isolates were consistently identified with average score values  $\geq 2.0$  whilst the Myco-EX protocol provided average score values  $\geq 1.9$  for these NTM species.

**Conclusions:** The implementation of the sonication step within NTM sample processing allows a highly reliable identification of these microorganisms using MALDI-TOF MS. This fact represents a step forward towards the consolidation of MALDI-TOF MS as a robust diagnostic tool for rapid, accurate and inexpensive identification of NTM species.