A MALDI-TOF MS procedure for clinical dermatophyte species identification in the routine laboratory

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Mots-clés	clinical dermatophytes [11], identification [12], MALDI-TOF mass spectrometry [13], routine [14], standardized procedure [15]
Résumé en anglais	The conventional identification of dermatophytes requires a long turnaround time and highly skilled mycologists. We have recently developed a standardized matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) assay to routinely identify molds of potential clinical significance. This study objective was to determine if this same assay could also be employed to identify clinical dermatophytes in the routine laboratory setting. The effects of the inclusion of cycloheximide in the culture medium and incubation time were tested after building a reference spectra library that included 48 well-characterized isolates of 17 dermatophyte species. Then these same isolates were prospectively identified using this library. MALDI-TOF MS-based identification was effective regardless of the presence of cycloheximide or incubation time as 130/133 (97.8%) of the clinical isolates were appropriately identified. Two *Microsporum canis* isolates yielded uninformative spectra and one M. audouinii isolate was misidentified. Since one only requires a small colony for MALDI-TOF MS analysis, accurate identifications were obtained in 3–6 days and, specifically, before the appearance of their characteristic morphological features. Consequently, identification turnaround time was dramatically reduced as compared to that needed for conventional morphological identification. In conclusion, this standardized MALDI-TOF MS-based identification procedure for filamentous fungi effectively identifies clinical dermatophyte isolates and drastically reduces the response times in the routine clinical laboratory.

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