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Evaluation of two MALDI-TOF MS systems on the identification of Candida tropicalis grown on different culture media

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Background: The aim of this study was to investigate the performance of two MALDI-TOF systems, Bruker Biotyper and Vitek MS, for identification of genetically-confirmed 225 *Candida tropicalis* blood isolates that were grown on several culture plates commonly used for primary fungal isolation.

Material/methods: These isolates included 105 from the National China Hospital Invasive Fungal Surveillance Net program (CHIF-NET) and 120 from National Taiwan University Hospital (NTUH). The six culture media tested for CHIF-NET isolates included trypticase soy agar supplemented with 5% sheep blood (BAP), Sabouraud dextrose agar supplemented with chloramphenicol (SDA-C), CHROMagar, China blue agar (CBA), Chocolate agar supplemented with vancomycin (CAP-VA), and MacConkey agar (MAC). The seven culture media used for NTUH isolates were BAP, SDA, CHROMagar, Eosin methylene blue (EMB), Inhibitory mold agar (IMA), Mycosel agar, and Cornmeal agar (CMA). Isolates were incubated at 28°C and/or 35°C and colonies were collected for MALDI-TOF MS study after incubation for 24 or 48 hours.

Results: The low rates (<90%) for accurate species identification (score values of ≥1.700) by Bruker Biotyper were not found on the six agar media tested for CHIF-NET isolates but on SDA (85.8%) and CMA (52.5%) for NTUH isolates. The low rates (<90%) for correct identification (confidence values of 99.9%) by Vitek MS was found on CHROMagar (84.8%) for CHIF-NET isolates and on SDA (51.7%), Mycosel agar (57.5%), and CMA (9.2%).

Conclusions: Clinical microbiologists should be aware that the different performance results for identification of *C. tropicalis* could be found on colonies grown on different culture media by using different MALDI-TOF MS systems.