

eP485

ePoster Viewing

MALDI-TOF

## TO MALDI OR NOT TO MALDI: SPECIFICITY OF CHROMOGENIC AGARS FOR IDENTIFYING ESCHERICHIA COLI FROM URINE CULTURES

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**Objectives:** Renewed interest in the specificities of chromogens in urine agars arose as a potential way to reduce the number of isolates requiring MALDI-TOF testing from urine cultures. 'Burgundy-pink' (BP) colonies on urine chromogenic agars are claimed by manufacturers to distinguish *E. coli*, the most common urinary pathogen, from other bacteria. This prospective study aimed to determine whether development of BP colonies was sufficiently specific for *E. coli* such that further identification could be eliminated.

**Methods:** To reduce inoculation variability, the Copan WASP sequentially pipetted 1uL from 2500 consecutive urines to five agars: 5% Sheep Blood (BA), MacConkey w/out crystal violet (MAC), Brilliance UTI Clarity (UTIC; Oxoid), CPS 4 ChromID (CPS4; bioMérieux) and Colorex Orientation (CORI; Alere). Growth was interpreted following clinical laboratory BA/MAC definitions of significant (SG), non-SG (NSG) or mixed (MG) cultures. Cultures were read at 16-20h by persons blinded to each others' results. Quantities, colours and sizes of all colony types were documented in Access. Isolate identification was by MALDI-TOF (bioMérieux VITEK-MS Plus). Analyses included all BP-coloured isolates and all *E. coli* regardless of colony colour, whether from SG or inadvertently from NSG or MG cultures. As MALDI-TOF cannot distinguish *E. coli* from *Shigella*, *Shigella* was ruled out in non-BP, non-lactose-fermenting *E. coli* using the Wellcolex Colour Shigella kit (Oxoid). Statistics were calculated using [www.graphpad.quickcalcs.com](http://www.graphpad.quickcalcs.com).

**Results:** Of the 2584 isolates identified from all agars during the study, 814 were BP-coloured of which 100% were *E. coli* (CPS4: n=282; 249 SG; 33 NSG/MG; UTIC: n=270; 246 SG; 24 NSG/MG; CORI: n=262; 236 SG; 26 NSG/MG). This resulted in a BP-specificity of 100% (95%CI: 99.7-100) for all chromogenic agars combined. Of 282 *E. coli* identified on CPS4, all were BP (CP24 BP-sensitivity: 100%; 95%CI: 98.4-100). Of 280 *E. coli* identified on UTIC, all were BP except 10 (3.6%) which were 'cream-translucent' (CRM) (UTIC BP-sensitivity: 96.4%; 95%CI: 93.5-98.1%). Of 286 *E. coli* identified on CORI, all were BP except 4 (1.4%) that were CRM and 20 (7%) that were light-BP (CORI BP-sensitivity: 91.6%; 95%CI: 87.8-94.3%). The proportion of *E. coli* detected as BP on CPS4 (100%) was significantly higher compared to UTIC (96.4%; P=0.0009) and CORI (91.6%; P<0.0001)

**Conclusions:** This study demonstrated that BP colour on all urine chromogenic agars tested was 100% specific for *E. coli* and that BP colour alone may be considered sufficient for species-level identification of *E. coli* from urine cultures without the need for additional confirmatory testing. While use of any of these chromogenic agars will dramatically reduce the workload associated with *E. coli* identification from urines when implementing MALDI-TOF, CPS4 had an advantage as it detected a significantly higher proportion of *E. coli* as BP (100%) compared to UTIC (96.4%) and CORI (91.6%).