

Walk away automated disk diffusion susceptibility testing by Copan WASPLAB



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Introduction

Multi-drug resistant bacteria have become a significant public health concern which emphasizes the critical role of susceptibility testing in daily patient care.

Traditionally, antimicrobial susceptibility testing (AST) has been performed by disk diffusion or microdilution, both of which are laborious procedures when performed manually. The objective of this study was to compare the Copan WASP™-WASPLab™ expanded with an automated disk dispenser and inhibition zone reader (WASP+) with the gold standard, manual disk diffusion, and with the currently used method BioMerieux VITEK2™ (microdilution based).

Methods

198 Enterobacteriaceae, isolated from clinical specimens, were tested by VITEK 2, WASP+ and manually by disk diffusion for ciprofloxacin, fosfomycin, amoxicillin-clavulanic acid, trimethoprim-sulfamethoxazole, trimethoprim and nitrofurantoin. All isolates were also screened for the presence of ESBL phenotype by cefotaxime and ceftazidime disks.

Manual disk diffusion was performed conform EUCAST guidelines. For the WASP, a 0.5 McFarland bacterial suspension was inoculated on Mueller Hinton agar plates by the WASP+. Antibiotic disks were automatically dispensed on the inoculated agar plates and incubated in the WASP at 35C ambient air. Automated pictures of the plates were taken before and after 18h incubation.

	Very Major error	Major error	Minor error	Identical
AMCL	2	1	0	98%
CTX	1	0	0	99%
CAZ	0	0	2	99%
CIP	0	0	2	99%
FD	2	0	4	97%
TRIM	0	0	0	100%
SXT	0	2	2	98%
Total	5	4	10	1366/1385 (99%)

Table 1. WASP+ Vs Manual disk diffusion in 198 Enterobacteriaceae

	Very Major error	Major error	Minor error	Identical
AMCL	6	12	0	91%
CTX	0	0	2	99%
CAZ	0	0	16	92%
CIP	0	1	10	94%
FD	2	1	6	95%
TRIM	1	0	0	99%
SXT	1	1	1	98%
Total	10	15	35	1294/1354 (96%)

Table 2. WASP+ Vs VITEK 2 in 198 Enterobacteriaceae

AMCL: amoxicillin-clavulanic acid, CTX: cefotaxim, CAZ: ceftazidime, CIP: ciprofloxacin, FD: nitrofurantoin, TRIM: trimetoprim, SXT: co-trimoxazole.

Results

WASP+ disk diffusion was in 1366/1385 susceptibility tests (98.6%) in accordance with manual disk diffusion. Ten minor discrepancies, 4 major and 5 very major discrepancies were found.

WASP+ and VITEK 2 were in accordance in 1294/1354 susceptibility tests (95.6%). All ESBL's (n=34) detected by the VITEK 2 were also detected by WASP+.

Disclosure: congress attendance was sponsored by Copan.

- Very major error: WASP+ S, reference method R,
- Major error: WASP+ R, reference method S
- Minor error: one method I

Conclusions

- The Copan WASP™ -WASPLab™ AST module provides an automated and standardized disk diffusion test that can reliably test up to 8 antibiotic disks on a Mueller Hinton agar plate.
- Automated cefotaxime and ceftazidime disk diffusion can be used to screen for ESBL-positive Enterobacteriaceae.

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