

Identification and susceptibility testing by direct inoculation from blood bottles culture Bactec® into Vitek 2®

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Over a 4 months period we carried out the identifications and the susceptibility tests of isolated bacteria taken from blood bottles culture Bactec® into the automat Vitek 2® directly from the bottle, and in parallel after subculture on blood agar.

I - Methode:

The fast technique used is similar to the one described by Bruins and all. Five ml of the positive bottle are transferred in a dry tube with separating gel centrifuged 10 minutes to 4000 rpm. The supernatant is eliminated, and the germs present at the surface of the gel were removed with a cotton swab and used to make a 0.6McF suspension. The traditional technique is carried out from subculture and according to usual methodology recommended by the manufacturer of the automate

II-Results :

• Identification (ID-GNB and ID GPC)

Germ	Tested	Correctly identified	Low discrimination	Not identified	Misidentified
<i>E. coli</i>	16	15	0	1	0
<i>K. pneumoniae</i>	5	3	1*	1	0
<i>K. oxytoca</i>	2	1	1*	0	0
<i>S. marcescens</i>	4	3	0	1	0
<i>E. cloacae</i>	5	5	0	0	0
<i>Salmonella</i>	1	1	0	0	0
<i>Pasteurella</i>	1	1	0	0	0
<i>A. baumannii</i>	2	1	1	0	0
Total	36	30	3	3	0

Germ	Tested	Correctly identified	Low discrimination	Not identified	Misidentified
<i>S. aureus</i>	16	9	0	7	0
<i>S. epidermidis</i>	17	12	0	4	1
<i>S. haemolyticus</i>	2	2	0	0	0
<i>S. hominis</i>	3	0	3	0	0
<i>S. warneri</i>	3	1	1	1	0
<i>S. capitis</i>	1	0	0	1	0
<i>E. faecalis</i>	1	1	0	0	0
<i>E. faecium</i>	1	1	0	0	0
<i>S. agalactiae</i>	2	1	1	0	0
<i>S. constellatus</i>	1	0	1	0	0
Total	47	27	5	12	1

* low discrimination between *K. oxytoca* and *K. pneumoniae*

• Susceptibility testing (AST-N017 and AST-P515)

Antibiotic	Tested	Cmi correct	Error major	Error minor
Ampicillin	36	36	0	0
Amoxicillin/clavulanic acid	36	36	0	0
Ticarcillin	36	36	0	0
Ticarcillin/clavulanic acid	36	36	0	0
Piperacillin/tazobactam	36	36	0	0
Cefalotin	36	36	0	0
Cefoxitin	36	36	0	0
Cefotaxime	36	36	0	0
Ceftazidime	36	36	0	0
Imipenem	36	36	0	0
Amikacin	36	36	0	0
Gentamicin	36	36	0	0
Netilmicin	36	36	0	0
Tobramicin	36	36	0	0
Nalidixic acid	36	36	0	0
Norfloxacin	36	36	0	0
Ciprofloxacin	36	36	0	0
Nitrofurantoin	36	36	0	0
Trimethoprim/Sulfamethoxazole	36	35	0	1

Antibiotic	Tested	Cmi correct	Error major	Error minor
Oxacillin MIC	42	42	0	0
Oxacillin	42	42	0	0
Kanamycin	42	42	0	0
Tobramycin	42	41	1	0
Gentamicin	42	42	0	0
Erythromycin	42	42	0	0
Lincomycin	42	41	1	0
Clindamycin	42	39	3	0
Pristinamycin	42	42	0	0
Tetracycline	42	42	0	0
Minocycline	42	42	0	0
Rifampicin	42	42	0	0
Fosfomycin	42	42	0	0
Fusidic acid	42	41	0	1
Ofloxacin	42	42	0	0
Nitrofurantoin	42	42	0	0
Teicoplanin	42	32	2	8
Vancomycin	42	42	0	0
Trimethoprim/Sulfamethoxazol	42	42	0	0

III-Conclusion :

We found 50% of correspondence for the identifications of cocci with positive gram (Id GPC cards) and more than 90% for the bacilli with negative gram (Id GNB cards).

Concerning the susceptibility tests the results are similar for the two techniques in more than 99% of the cases, with nevertheless a problem for the teicoplanine and the clindamycin on AST-P515 cards.

As a whole this technique can make it possible to carry out the susceptibility tests of the staphylococcae and the enterobacteriaceae and the identifications of the enterobacteriaceae with a saving of time of 6 to 24h

Reference: Bruins MJ, Bloembergen P, Ruijs GJ, Wolfhagen MJ Identification and susceptibility testing of Enterobacteriaceae and Pseudomonas aeruginosa by direct inoculation from positive BACTEC blood culture bottles into Vitek 2. Clin Microbiol. 2004 Jan;42(1):7-11