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Poster Session I
EUCAST antimicrobial susceptibility testing

UTILITY OF A NEWLY DEVELOPED MULLER HINTON E AGAR FOR THE DETECTION OF MRSA CARRYING THE NOVEL MECA HOMOLOGUE MECC

A. Larsen[1], A. Petersen[1], M. Holmes[2], A. Kearns[3], G. Edwards[4], C. Teale[5], R. Skov[1]

[1]Staphylococcus Laboratory, Statens Serum Institut, Copenhagen, Denmark ; [2]Department of Veterinary Medicine, University of Cambridge, Cambridge, United Kingdom ; [3]Antimicrobial Resistance and Healthcare Associated Infections Reference Unit, Public Health England, Colindale, United Kingdom ; [4]Scottish MRSA Reference Laboratory, Stobhill Hospital, Glasgow, United Kingdom ; [5]N/A, Animal Health and Veterinary Laboratories Agency Shrewsbury, Shrewsbury, United Kingdom

Objectives

Early detection of methicillin-resistant *Staphylococcus aureus* (MRSA) is important in infection control. Accurate phenotypic antimicrobial susceptibility testing (AST) has proven important for the accurate detection of MRSA harboring the *mecA* homologue *mecC*, since most genotypic methods fail to detect these isolates due to the low sequence similarity between *mecA* and *mecC* and concordant primer mis-matches.

In a recent evaluation, cefoxitin proved superior to oxacillin for detection of *mecC* MRSA by disc diffusion testing, as previously also found for *mecA* MRSA. Furthermore, the study revealed considerable differences between Muller Hinton (MH) agars from different manufacturers. In response to these results, a new MH agar, called MH E, was developed by bioMérieux.

The objective of this study was to evaluate this newly developed MH E agar using the same international strain collection of well characterized *mecC* MRSA isolates as used in the previous evaluation of phenotypic AST.

Methods

The evaluation included 62 *S. aureus* isolates, three methicillin susceptible isolates (MSSA) and 59 MRSA carrying the *mecC* gene as confirmed by multiplex PCR detecting *mecA, mecC* together with the Protein A (*spa)* and PVL (*lukF-PV)* encoding genes. *Spa* types were obtained as previously described.

Inhibition zone diameters were measured for 30 mg cefoxitin discs (Oxoid) using an automated caliper and MICs were measured using ETest® (bioMérieux). Data were interpreted in accordance with EUCAST recommendations: Zone diameters of less than 22 mm and MICs > 4 mg/L were interpreted as resistant.

Results

The strain collection represented 13 *spa* types assigned to CC130, ST425 and ST1943. All 59 *mecC* isolates and the three MSSAs were correctly identified, with median values of 14 mm and 32 mg/L, respectively. When using disc diffusion or ETest®, MH E agar correctly identified 100% of the strains. No significant inter- batch variation was observed.

For three isolates double inhibition zones were observed with the MH E agar, which was not the case when the isolates were tested on other MH agars.

Conclusion

The correct phenotypic identification of *mecC* MRSA using MH E is an improvement compared to the former MH agar tested from bioMérieux and proves phenotypic AST using either disc diffusion or Etest to be a reliable method for detection of *mecC* MRSA.

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