

# Validation of Colorex™ (CHROMagar™) Serratia agar on WASP™/WASPLab™ in screening for Serratia marcescens in neonatal intensive care units using the ESwab™



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M. Gaskin<sup>1</sup>, D. Yamamura<sup>1,2</sup>, J. Korver<sup>1</sup>

<sup>1</sup> Hamilton Regional Laboratory Medicine Program

<sup>2</sup> Department of Pathology and Molecular Medicine, McMaster University, Hamilton, ON

## Introduction

*Serratia marcescens* is commonly associated with outbreaks in neonatal intensive care units. Investigations of outbreaks require efficient recovery of clinical and environmental isolates to prevent potentially fatal sepsis, meningitis or pneumonia. The objective of this study was to validate a new Colorex™ (CHROMagar™) Serratia agar for neonatal Serratia screening using the WASP™ and WASPLab™.

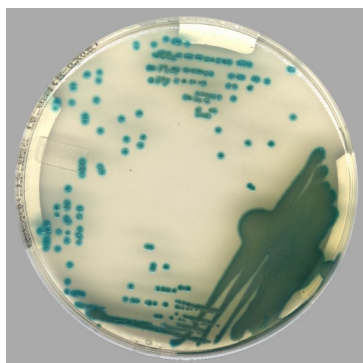


Figure 1: Serratia marcescens on Colorex Serratia agar

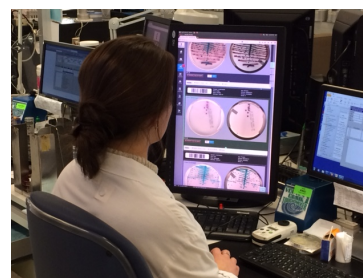


Figure 2: WASPLab digital imaging analysis

## Materials and Methods

This study used 579 Serratia surveillance specimens from McMaster Children's Hospital, collected with ESwab™ kits processed on the WASP™. Known reference strains (N=105) of Serratia marcescens were also tested. The Colorex™ Serratia agar plates were incubated in the WASPLab™ for 20 hours then imaging analysis was performed. Results were compared to current testing method which uses MacConkey agar. Positive results were confirmed with Vitek MS.



Figure 3: Positive Serratia called negative from MacConkey agar

## Results

Of the 579 samples tested, 6 were positive for *Serratia marcescens* by the current method using MacConkey plates, versus 24 positives for Serratia species with Colorex™ Serratia agar and the WASP™ and WASPLab™ imaging analysis. 22 identified as *Serratia marcescens*, 1 as *S. Lquifaciens* and 1 as *S. odifera*. All 24 isolates were blue in colour and grew heavy on the Colorex™ Serratia agar. 18 specimens showed very light growth of target colour blue colonies that identified as Klebsiella oxytoca, Citrobacter freundii and Enterobacter cloacae. 11 specimens showed a light growth of non-target clear colonies that identified as Proteus, Morganella and Pseudomonas species. 102 known Serratia isolates grew well on Colorex™ Serratia agar with varying blue to blue-green colour. Interestingly, a few red pigmented strains resulted in pink to purple colonies. Colorex™ Serratia agar sensitivity: 100% (95CI 0.61-1) and specificity: 97% (95CI 0.95-0.98).

## Conclusion

Results showed Colorex™ Serratia agar (CHROMagar™) had a significantly greater sensitivity than MacConkey agar in isolating *Serratia marcescens* from neonatal surveillance specimens. The use of the WASP for set up provides efficient and consistent processing and WASPLab™ imaging allows for high resolution digital imaging analysis. The WASPLab™ also has the capability to use segregation software to analyze images and put no growth images into a separate screen for rapid resulting.



Contact: Mark Gaskin Email: gaskinm@HHSC.CA