



Comparison of 3 Selective Chromogenic Media Used for the Identification of *Listeria Monocytogenes* in the South African RTE Prepared-Fruit Supply Chain

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Abstract

Ready-to-eat (RTE) prepared fruit products pose a risk as vectors for *L. monocytogenes* as these products cannot be heat sterilized due to the negative effects caused to quality and consumer appeal. For this reason, monitoring of this ubiquitous pathogen in the RTE prepared-fruit industry, is reliant on the use of chromogenic agar for the detection and presumptive classification of *L. monocytogenes* in food products and from routine swabbing in the food-processing environment. Chromogenic media has contributed to ensuring better food safety whilst also reducing the time required to achieve presumptive results, however, research has suggested that selective media may play a role in the overrepresentation of certain lineage types based on the effects of selective supplements used to inhibit contaminating bacteria. Media like Rapid'L.Mono (RLM), Brilliance *Listeria* Agar (BLA), and Harlequin *Listeria* Chromogenic agar (HAR) rely on biochemical reactions associated with *L. monocytogenes* for its detection, some of these also associated with non-*Listeria* bacteria. *Bacillus cereus* group, *Enterococcus* as well as *Staphylococcus species* have the ability to grow on these media, with their prevalence in the environment increasing the likelihood of their isolation in conjunction with *L. monocytogenes*. Analysis of strains collected from an RTE prepared-fruit processing facility showed the growth of contaminating bacteria on chromogenic media, and the need to assess the differences between these media and their ability to select for certain *L. monocytogenes* isolates.

Glycerol stocks of *L. monocytogenes* were plated onto the different media and incubated for 24 and 48 hours, followed by colony counting. These values were then compared for different lineages and sources of isolates using a repeated measures ANOVA.

Findings indicate that all chromogenic media were comparable, and that no significant difference was observed (p -value > 0.05) as a result of lineage or source of the isolates. It was found, however, that *S. sciuri* was capable of growth on RLM as well as BLA but not on HAR. Furthermore, *Enterococcus faecalis* and *Bacillus cereus* group were also capable of growth on RLM.

Results from this study suggest that lab technicians should be trained in distinguishing between the colony morphology of contaminating bacteria, and that the use of HAR was better suited for testing of environmental swabs.

Biography: Michael K. Esterhuysen

Michael K. Esterhuysen is a Masters' student at the University of Stellenbosch. He is passionate about food safety, with a research focus on *Listeria monocytogenes* and its association with fruit products.