

## Evaluation of motility enrichment on modified semisolid Rappaport-Vassiliadis medium (MSRV) and automated conductance in combination with Rambach agar for *Salmonella* detection in environmental samples of a milk powder factory

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### Abstract

The efficacy of motility enrichment on modified semisolid Rappaport-Vassiliadis medium (MSRV) and an automated conductance method for the detection of *Salmonella* in environmental samples was evaluated. Two hundred and ten environmental samples from unrestricted areas of a milk powder factory, 49 of which were artificially contaminated with *Salmonella infantis*, were examined. From exactly 100 samples *Salmonella* could be isolated. With the conventional (ISO-DIS 6579) method a 100% score was obtained, whereas the MSRV method gave 82 positive results. The conductance method permitted the detection of *Salmonella* in only 66 samples. The use of Rambach agar improved isolation efficiency of *Salmonella* from enrichment broths.

**Key words:** *Salmonella*; Milk powder; Rapid method; Rambach agar

Another objective of the underlying study was to evaluate the usefulness of Rambach agar. In recent publications a high specificity of this medium was demonstrated: testing of 175 strains, 74 of which were *Salmonella*, did not give any false positive reaction. The reported sensitivity was 91% (Manafi and Sommer, 1991). However, this does not imply that in the presence of competing microorganisms *Salmonella* will be able to develop well on Rambach agar. To assess this, the productivity (i.e. the number of petri dishes with suspect colonies) of Rambach agar was compared with that of BGA (Table 2). A total of 1546 samples (selective enrichment broths, MSRV etc.) was streaked on both BGA and RBA. In 94.0% of the cases the plates gave identical results: either absence of suspect colonies on both types of plates or presence on both media. In 40 cases suspect colonies were only found on BGA, but of these only 12 could be confirmed. Eighty samples (5.2%) only gave typical *Salmonella* colonies on Rambach agar. All 80 were confirmed.

If, in the conventional assay, only Rambach agar would have been used, only one positive sample would have been missed. On the other hand, if only BGA would have been used, seven positive samples would have been missed.

Taken in account the low false positive rate it can be concluded that Rambach is a valuable tool in *Salmonella* detection.

Table 2  
Comparison of Brilliant green – phenol red agar (BGA) and Rambach agar (RBA)

Combination of results <sup>a</sup>	Number (%)
BGA + /RBA +	588 (38.0)
BGA – /RBA –	866 (56.0)
BGA + /RBA –	12 <sup>b</sup> (0.8)
BGA – /RBA +	80 (5.2)
Total	1546 (100.0)

<sup>a</sup> Samples (enrichment broths) were streaked on BGA and RBA. After incubation it was investigated whether typical colonies of *Salmonella* had developed.

<sup>b</sup> Another 28 samples gave suspect colonies on BGA but not on RBA, but these were all false positives.