00563 MM *ChromoSelect* Agar
(Miller and Mallinson *ChromoSelect* Agar)

MM *ChromoSelect* Agar is recommended for identification and differentiation of *Salmonella* and non-salmonella like *Citrobacter* from water samples.

Composition:

Ingredients	Grams/Litre
Peptone (vegetable)	10.0
Vegetable Extract	2.0
D-Cellobiose	3.0
Lactose	10.0
D-Mannitol	1.2
D-Trehalose	1.33
Chromogenic mixture	6.6
Agar	15.0
Final pH 7.6 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Appearance: Yellow coloured, homogeneous, free flowing powder.
Gelling: Firm.
Colour and Clarity: Light amber coloured, clear solution after boiling.

Directions:
Suspend 49.13 g in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE OR OVERHEAT. Cool to 45-50°C and pour into sterile petri plates.

Principle and Interpretation:
MM *ChromoSelect* Agar was formulated by Miller and Mallison (1) for specific isolation and detection of *Salmonellae*. This medium is superior to XLT4 Agar in supporting growth of *Salmonella* due to the presence of appropriate proportion of four sugars. Most differential and selective media are formulated with one or more sugars and pH indicators respectively. The utilization of sugars by organisms results in pH-changes. This is used as a means of distinguishing *Salmonella* from competing bacteria on the basis of colony colour. *Salmonella* usually are unable to ferment these sugars (2) which support growth of competing bacteria. Thus, other bacteria tend to overgrow *Salmonellae*, masking their presence. The inclusion of sugars like Mannitol, Cellobiose and Trehalose stimulate the better initial growth of *Salmonella* cells. However, the low concentrations of these sugars do not interfere with the utilization of protein and H_2S production. Presence of lactose suppresses H_2S production by nonsalmonellae like *Citrobacter freundii*. A chromogenic mixture, present in this medium helps to differentiate between lactose fermenters and nonfermenters. Lactose fermenters give bluish green coloured colonies which would have been impossible to differentiate with an indicator based on pH change. Inclusion of tergitol 4 in the medium suppresses the presence of *Proteus* and *Providencia* colonies. Peptone (vegetable) and Vegetable Extract provide essential nitrogen compounds.

Cultural characteristics after 18-24 hours at 37°C.

Organisms (ATCC)	Growth	Colour of colony
Escherichia coli (25922)	+++	greenish blue
Salmonella enteritidis (13076)	+++	black centered
Salmonella typhimurium (14028)	+++	black centered
Citrobacter freundii (8090)	++	colorless*
Enterococcus faecalis (29212)	-	-

* May show bluish green colour on prolonged incubation.

References:

1. R.G. Miller, E.T. Mallison, J. Food Protection, 63(10), 1443-46 (2000)
2. R.G. Miller, C.R. Tate, E.T. Mallinson, J.A. Scherrer, Xylose-Lysine-Tergitol 4: an improved selective agar medium for the isolation of Salmonella., Poultry Sci., 70, 2429-32 (1991)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.