

## Technical Information

### M-Brilliant Green Broth

**Product Code: DM 2102**

**Application:** - M-Brilliant Green Broth is used as a selective differential medium for primary screening of Salmonella in polluted water using membrane filter technique.

#### Composition\*\*

Ingredients	Gms / Litre
Proteose peptone	20.000
Yeast extract	6.000
Lactose	20.000
Saccharose	20.000
Sodium chloride	10.000
Phenol red	0.160
Brilliant green	0.025
Final pH (25°C)	6.9±0.2

\*\*Formula adjusted, standardized to suit performance parameters

#### Principle & Interpretation

Salmonella is a gram-negative, facultatively anaerobic, non-sporulating, rod in the family Enterobacteriaceae. They are widely distributed in animals affecting mainly the stomach and the intestines. These organisms are difficult to differentiate biochemically from Escherichia coli. Geldreich and Jeter<sup>(1)</sup> developed membrane screening technique and Kabler and Clark<sup>(2)</sup> used M-Brilliant Green Broth for primary screening of Salmonella from polluted water. This selective differential medium is a modification of Brilliant Green Agar without agar but other constituent in double strength<sup>(3)</sup>. Salmonella are unable to ferment either lactose or saccharose in the medium. This allows identification of accompanying weakly lactose-positive or lactose-negative, but saccharose positive microorganisms.

Proteose peptone and yeast extract in the medium are sources of carbon, nitrogen, vitamins and minerals. Lactose and saccharose are the carbon and energy sources. Sodium chloride provides essential ions. Phenol red is the pH indicator. Brilliant green inhibits gram-positive and most of the gram-negative bacteria except Salmonella.

In this technique, known quantity of water is passed through membrane filter. The membrane filter is then kept on an absorbent pad saturated with M-Tetrathionate Broth (DM2115). It is then incubated in humid atmosphere for 3 hours at 35°C following the membrane transferred to another absorbent pad saturated with M-Brilliant Green Broth and the incubation is continued for 15 more hours at 35°C. After the total incubation of 18 hours, the membrane is transferred to another fresh pad soaked in urease test reagent (20 grams urea, 0.16 grams bromothymol blue, 0.2 grams phenol red, all components in 1 litre of distilled water). Urease test reaction is recorded after 20 minutes.

Purple colonies that are urease positive and lactose and saccharose negative, are probably of Proteus species. Yellow colonies that are urease negative and lactose or saccharose positive are coliforms. Pink to red colonies that are urease negative and lactose and saccharose negative are probably enteric pathogens. Since the urease colour reaction will eventually diffuse over the entire membrane surface, it is recommended that selection of red or pink colonies, for further subculture and serological tests to be done within 15-30 minutes after diffusion of reagent.

#### Methodology

Suspend 76.19 grams of powder media in 1000 ml distilled water. Shake well & heat if necessary to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 35°C and saturate sterile absorbent cotton pad with 2 ml of the broth. The medium should be used within 24 hours of rehydration.



Dehydrated Culture Media  
Bases / Media Supplements

## Quality Control

### Physical Appearance

Light yellow to pink homogeneous free flowing powder

### Colour and Clarity of prepared medium

Greenish brown coloured clear to slightly opalescent solution

### Reaction

Reaction of 7.62% w/v aqueous solution at 25°C. pH: -6.9±0.2

**pH range** 6.70-7.10

### Cultural Response/ characteristics

DM 2102: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours on membrane filter in humid atmosphere.

Organism	Inoculum (CFU)	Growth	Colour of Colony (on Membrane filter)
<i>Escherichia coli</i> ATCC 25922	50-100	none-poor	yellowish green
<i>Salmonella Typhi</i> ATCC 6539	50-100	poor-fair	reddish pink
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	pinkish white
<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good-luxuriant	pinkish white
<i>Staphylococcus aureus</i> ATCC 25923	>=10 <sup>3</sup>	inhibited	

## Storage and Shelf Life

**Dried Media:** Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

**Prepared Media:** 2-8° in sealable plastic bags for 2-5 days.

## Further Reading

1. Geldreich E. E. and Jeter M. L., 1952, Bact. Proc. SAB, Boston, P.33.
2. Kabler P. W. and Clark H. F., 1952, American J. Publ. Hlth., 42:390.
3. Kauffmann F., 1935, Z. Hyg. Infektionskr., 117:26.

## Disclaimer :

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