

## Technical Information

### Hugh Leifson Medium

**Product Code: DM 1826S**

**Application:** - Hugh Leifson Medium is used for detecting aerobic and anaerobic breakdown of glucose.

#### Composition\*\*

Ingredients	Gms / Litre
Peptic digest of animal tissue	2.000
Sodium chloride	5.000
Dipotassium phosphate	0.300
Glucose	10.000
Bromo thymol blue	0.030
Agar	3.000
Final pH ( at 25°C)	7.1±0.2

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

#### Principle & Interpretation

Hugh and Leifson <sup>(1)</sup> devised this medium. They described the taxonomic significance of fermentative and oxidative metabolism of carbohydrates by gram-negative intestinal bacteria. It is recommended by BIS <sup>(2)</sup> for the isolation and cultivation of *Vibrio cholerae* including *Vibrio* species which cause food poisoning. The medium contains a high concentration of carbohydrate and low concentration of peptic digest of animal tissue to avoid the possibility of an aerobic organism utilizing peptic digest of animal tissue and producing an alkaline condition which would neutralize slight acidity produced by an oxidative organism <sup>(3)</sup>. Dipotassium phosphate promotes fermentation and acts as pH controlling buffer. Agar concentration enables the determination of motility and aids in distribution of acid throughout the tube produced at the surface of medium. Oxidative organisms produce acid in unsealed tube with little or no growth and no acid formation in sealed tube while fermentative organisms produce acid in both sealed and unsealed tubes.

#### Methodology

Suspend 20.33 grams of powder media in 1000 ml distilled water. Shake well & heat with frequent stirring. Boil to dissolve the medium completely. Dispense in tubes in duplicate for aerobic and anaerobic fermentations. Sterilize by autoclaving at 10 lbs pressure (115°C) for 20 minutes. Cool the tubes with medium in an upright position. Note: In an additional set of tubes 5mm paraffin oil may be layered on surface of medium for the differentiation of oxidative & fermentative organisms.

#### Quality Control

##### Physical Appearance

Bluish green coloured homogeneous free flowing powder

##### Gelling

Semisolid, comparable with 0.3% Agar gel.

##### Colour and Clarity of prepared medium

Greenish blue coloured clear to slightly opalescent gel forms in tubes as butts.

##### Reaction

Reaction of 2.03% w/v aqueous solution at 25°C. pH : 7.1±0.2

**pH Range** 6.90-7.30

##### Cultural Response/Characteristics

DM1826S: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.



Dehydrated Culture Media  
Bases / Media Supplements

Organism	Motility	Aerobic fermentation	Anaerobic fermentatoin
<i>Enterobacter aerogenes</i> ATCC 13048	Positive, growth away from stabline causing turbidity	Acid and gas production, positive reaction	Acid and gas production, positive reaction
<i>Escherichia coli</i> ATCC 25922	Positive, growth away from stabline causing turbidity	Acid and gas production, positive reaction	Acid and gas production, positive reaction
<i>Pseudomonas aeruginosa</i> ATCC 27853	Positive, growth away from stabline causing turbidity	Acid and gas production, negative reaction no colour change	Acid and gas production, positive reaction, yellow colour
<i>Salmonella Typhi</i> ATCC 6539	Positive, growth away from stabline causing turbidity	Acid and gas production, positive reaction	Acid and gas production, positive reaction
<i>Shigella sonnei</i> ATCC 25931	Negative, growth along the stabline, surrounding medium remains clear	Acid and gas production, positive reaction, yellow colour	Acid and gas production, positive reaction, yellow colour

## 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<sup>0</sup> in sealable plastic bags for 2-5 days.

## Further Reading

1. Hugh and Leifson, 1953, J. Bact., 66:24.
2. Bureau of Indian Standards, IS : 5887 (Part V) 1976, reaffirmed 1986.
3. MacFaddin J.F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
4. Finegold S.M. Martin W.J. and Scott E.G., 1978, Bailey and Scotts Diagnostic Microbiology, 5th ed., The C.V. Mosby Co., St. Louis.

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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