Hugh Leifson Medium BIS

Intended Use
Hugh Leifson Medium BIS is a medium used to distinguish between anaerobic and aerobic breakdown of carbohydrate (glucose) as per BIS specification IS:5887 (Part VII)-1999.

Summary
Hugh Leifson Medium was formulated by Hugh and Leifson. They described the taxonomic significance of fermentative and oxidative metabolism of carbohydrates in gram-negative intestinal bacteria. It is recommended by BIS for the isolation and cultivation of *Vibrio cholerae* and other *Vibrio* species which cause food poisoning.

Principle
The medium contains a high concentration of carbohydrate and low concentration of peptone to avoid the possibility of an aerobic organism utilizing peptone and producing an alkaline condition which would neutralize slight acidity produced by an oxidative organism. 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.

Formula*
Ingredients	**g/L**
Peptone	2.0
Sodium chloride	5.0
Dipotassium phosphate	0.3
Glucose (Dextrose)	10.0
Bromothymol blue	0.03
Agar	3.0
Final pH (at 25°C)	7.1 ± 0.2

*Adjusted to suit performance parameters.

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label.

Type of specimen
Clinical samples – Blood
Food and dairy samples
Water samples

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure. The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions
1. Suspend 20.33g of the powder in 1000 mL purified / distilled water.
2. Heat to boiling to dissolve the powder completely.
3. Dispense into test tubes in duplicate for aerobic and anaerobic fermentation.
4. Sterilize by autoclaving at 115°C (10 psi) for 20 minutes as per validated cycle.
5. Cool the tubed medium in an upright position.

Quality Control

Dehydrated Appearance: Light yellow to bluish green coloured, homogenous, free flowing powder.
Prepared Appearance: Bluish green coloured, clear to slightly opalescent semisolid gel forms in tubes as slants.
Cultural Response: Cultural characteristics observed after an incubation of 18-48 hours at 35-37°C.

Organisms (ATCC)	Motility	Aerobic fermentation	Anaerobic fermentation
Klebsiella aerogenes (13048)	+	Acid (yellow) and gas production, positive reaction	Acid (yellow) and gas production, positive reaction
Escherichia coli (25922)	+	Acid (yellow) and gas production, positive reaction	Acid (yellow) and gas production, positive reaction
Pseudomonas aeruginosa Strain Boston 41501 (27853)	+	Acid (yellow) production, positive reaction	Unchanged (green) or alkaline (blue) negative reaction
Salmonella Typhi (6539)	+	Acid (yellow) and gas production, positive reaction	Acid (yellow) and gas production, positive reaction
Shigella sonnei (25931)	-	Acid (yellow) production, positive reaction	Acid (yellow) and gas production, positive reaction

For Motility: **+**: Positive, growth away from stabline causing turbidity
- : Negative growth along the stabline, surrounding medium

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. Hugh and Leifson, 1953, J. Bacteriol., 66:24.
2. Bureau of Indian Standards, IS:5887 (Part VII) 1999.
3. MacFaddin J.F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Co., St. Louis. Wilkins, Baltimore.
4. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201080180500	Dehydrated Culture Media	500 g