

PRODUCT SPECIFICATION SHEET



Willis and Hobb's Medium Base (DM1455)

Intended Use

Willis and Hobb's Medium Base (DM1455) is recommended for isolation and identification of *Clostridia* from food.

Product Summary and Explanation

Clostridium is a genus of gram-positive bacteria belonging to the Firmicutes. They are obligate anaerobes capable of producing endospores. *Clostridium* species possesses several other characteristics that significantly contribute to its ability to cause foodborne diseases, in addition to its ability to produce gastrointestinal tract-active toxins. The heat resistance of its spores often allows *Clostridium* species to survive incomplete cooking of food; the surviving bacteria are then able to cause food poisoning.⁽¹⁾ This makes detection and isolation of these organisms from food important. Willis and Hobbs Medium Base was formulated by Willis and Hobbs⁽²⁾ for the identification of *Clostridium perfringens* on the basis of lecithinase reaction in egg yolk and lactose fermentation. This medium is prepared in accordance with Indian Standard⁽³⁾ under the specifications IS: 5887 (Part-IV) 1976.

Principles of the Procedure

Willis and Hobb's Medium Base contains peptic digest of animal tissue and meat extract which provide nitrogen and carbon source along with other growth factors. Sodium chloride helps to maintain the osmotic balance of the medium. Lactose is the energy and the carbon source. Neutral red is an indicator dye.

Formula / Liter

Ingredients	Gms / Liter
Peptic digest of animal tissue	10.00
Meat extract	10.00
Sodium chloride	5.00
Lactose	12.00
Neutral red	0.032
Agar	10.00
Final pH: 7.0 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 23.51 grams of the medium in 420 ml of distilled water.
2. Heat to boiling to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Cool to 50-55°C and aseptically add 15 ml Egg Yolk Emulsion (MS038), 60 ml sterile skimmed milk* and rehydrated contents of one vial of Willis and Hobbs Supplement (MS121). Mix well and pour into sterile Petri plates.
5. * 10% solution is prepared from skim milk powder and sterilized separately by autoclaving at 15 lbs pressure (121°C) for 5 minutes.

Quality Control Specifications

Dehydrated Appearance	Pale yellow to pink homogeneous free flowing powder
Prepared Medium	Basal medium : Red coloured clear to slightly opalescent gel After addition of sterile Egg Yolk Emulsion and sterile Skim milk solution : pinkish



PRODUCT SPECIFICATION SHEET

	red coloured opaque gel forms in Petri plates
Reaction of 4.7% solution	pH 7.0 ± 0.2 at 25°C
Gel Strength	Firm, comparable with 1.0% Agar gel

Expected Cultural Response: Cultural characteristics observed when incubated anaerobically after an incubation at 35-37°C for 18-48 hours with added Egg Yolk Emulsion (MS038), sterile skimmed milk solution and Willis and Hobb's supplement (MS121).

Sr. No.	Organisms	Results to be achieved			
		Inoculum (CFU)	Growth	Recovery	Lecithinase
1.	<i>Clostridium botulinum</i> ATCC 25763	50-100	good-luxuriant	>=50%	positive reaction, opaque zone around the colony
2.	<i>Clostridium perfringens</i> ATCC 12919	50-100	good-luxuriant	>=50%	positive reaction, opaque zone around the colony

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer appropriate references for standard test procedures.

Results

1. *Clostridium* species like *C. perfringens* and *C. botulinum* produce an opalescent zone around the colony in egg yolk containing media.
2. The production of a precipitate in the medium and a layer having a "pearly" (iridescent) appearance adjacent to and covering the colonies (lipase activity) of the different types of *C. botulinum* on agar medium containing egg yolk has been used as an aid in the differentiation and isolation of this group of bacteria.^(2,4)
3. Zones of clearing develop around proteolytic colonies.
4. Refer appropriate references and procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Willis and Hobb's Medium Base

Product Code : DM1455

Available Pack sizes : 500gm

References

1. Doyle, Michael, Beuchat, Larry and Montville Thomas, Food Microbiology, Fundamentals and Frontiers, ASM Press, Washington D.C.
2. Willis A. T., Hobbs G., 1959, Journal of Pathology and Bacteriology, Vol. 77, 511-521.
3. Bureau of Indian Standards (BIS), 1976, IS: 5887 (Part IV).





PRODUCT SPECIFICATION SHEET

4. McClung L. S. and Toabe R., 1947, J. Bacteriol., 53:139.

Further Information

For further information please contact your local MICROMASTER Representative.



MICROMASTER LABORATORIES PRIVATE LIMITED

DM1455PSS, QAD/FR/024,Rev.00

Unit 38/39, Kalpataru Industrial Estate,
Off G.B. Road, Near 'R-Mall', Thane (W) - 400607. M.S. INDIA.
Ph: +91-9320126789/9833630009/9819991103
Email: sales@micromasterlab.com

Disclaimer :

All Products conform exclusively to the information contained in this and other related Micromaster Publications. Users must ensure that the product(s) is appropriate for their application, prior to use. The information published in this publication is based on research and development work carried out in our laboratory and is to the best of our knowledge true and accurate. Micromaster Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are intended for laboratory, diagnostic, research or further manufacturing use only and not for human or animal or therapeutic use, unless otherwise specified. Statements included herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

