



PRODUCT SPECIFICATION SHEET

Jensen's Broth (DM775)

Intended Use

Jensen's Broth (DM775) is recommended for the detection and cultivation of nitrogen fixing bacteria.

Product Summary and Explanation

Nitrogen Fixation is a process in which atmospheric nitrogen is converted into ammonia or nitrogen dioxide. Nitrogen-fixing organisms are free-living bacteria, which grow well on a nitrogen-free medium. Two kinds of nitrogen-fixing bacteria are recognized one as free-living (non-symbiotic) including cyanobacteria and other as mutualistic (symbiotic) bacteria such as Rhizobium, associated with leguminous plants. The symbiotic nitrogen-fixing bacteria invade the root hairs of host plants, where they multiply and stimulate formation of root nodules, enlargements of plant cells and bacteria in intimate association. Within the nodules the bacteria convert free nitrogen to ammonia, which the host plant utilizes for its development. These bacteria utilize atmospheric nitrogen gas for their cell protein synthesis. This cell protein is then mineralized in soil after the death of the cells thereby contributing towards the nitrogen availability of the crop plants.⁽¹⁾ Jensen's Broth is formulated according to Jensen which is recommended for detection and cultivation of nitrogen fixing bacteria.⁽²⁾

Principles of the Procedure

Jensen's Broth contains sucrose which is the source of energy. Sodium molybdate helps to increase the process of nitrogen-fixation.⁽³⁾ Sodium chloride maintains osmotic equilibrium. Calcium in the form of chloride or sulphate stimulates nodulation.

Formula / Liter

Ingredients	Gms / Liter
Sucrose	20.00
Dipotassium phosphate	1.00
Magnesium sulphate	0.50
Sodium chloride	0.50
Ferrous sulphate	0.10
Sodium molybdate	0.005
Calcium carbonate	2.00
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.
3. Due to presence of calcium carbonate, the medium forms opalescent solution with white precipitate.

Directions

1. Suspend 24.1 grams of the medium in one liter of distilled water.
2. Heat just to boiling.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Mix well and dispense as desired.

Quality Control Specifications

Dehydrated Appearance	White to cream homogeneous free flowing powder
Prepared Medium	Cream coloured, slightly opalescent solution with slight precipitate in tubes
Reaction of % Solution	Not Applicable
Gel Strength	Not Applicable





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Expected Cultural Response: Cultural characteristics observed after an incubation at 25-30°C for upto 8 days.

Sr. No.	Organisms	Results to be achieved
		Growth
1.	<i>Rhizobium oryzae</i> ATCC 9363	good-luxuriant
2.	<i>Rhizobium leguminosarum</i> ATCC 10004	good-luxuriant
3.	<i>Rhizobium meliloti</i> ATCC 9930	good-luxuriant

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

Test Procedure

Refer appropriate references for specific test procedures.

Results

Refer appropriate references and test procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 10 - 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 : Jensen's Broth

Product Code : DM775

Available Pack sizes : 500gm

References

1. Subba Rao N. S., 1977, In: Soil Microorganisms and Plant Growth, Oxford and IBH Publishing Co., New Delhi, Pages 254-255.
2. Jensen. H. L., 1942, Pro Line Soc. N.S.W., 57,205-212.
3. Ranganayaki S., Mohan C., Ally Z., 1981; 21 (8): 607-10.

Further Information

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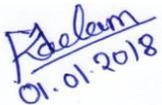
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