

Bile Esculin Azide Broth, Modified (DM1321)

Intended Use

Bile Esculin Azide Broth, Modified (DM1321) is recommended for selective cultivation of faecal *Streptococci*.

Product Summary and Explanation

The value of esculin hydrolysis in the identification of enterococci was illustrated by Rochaix.⁽¹⁾ The enterococci were able to split esculin, but other streptococci could not. Meyer and Schonfeld incorporated bile into the esculin medium and showed that 61 of 62 enterococci were able to grow and split esculin, whereas the other streptococci could not.⁽²⁾ Swan used an esculin medium containing 40% bile salts and reported that a positive reaction on the bile esculin medium correlated with a serological group D precipitin reaction.⁽³⁾

Bile Esculin Azide Agar, Modified was developed by Isenberg et. al.⁽⁴⁾ by reducing bile concentration from 40 to 10gm/l and added sodium azide. Bile Esculin Azide Broth, Modified is similar Bile Esculin Azide Agar, Modified but with agar omitted.

Principles of the Procedure

Bile Esculin Azide Broth, Modified is highly nutritious. Peptic digest of animal tissue and beef extract serves as sources of carbon, nitrogen, amino acids, vitamins and essential growth nutrients. Sodium citrate acts as a buffering agent. Oxgall and sodium azide is used to inhibit most of the other accompanying bacteria. Esculin is hydrolysed by Enterococci and group D streptococci to esculin which reacts with ferric ammonium citrate to form dark brown or black complex.⁽⁵⁾ Colonies suspected of being Enterococci can be emulsified in 2ml of broth (Bile esculin azide broth, modified) and incubated at 35- 37°C. The combination of esculin and bile in presence of sodium azide permits the selection and differentiation of Enterococci by esculin hydrolysis (Blackening of medium) within 2hours, when heavy inoculum is used.

Formula / Liter

Ingredients	Gms / Liter
Casein enzymic hydrolysate	17.00
Peptic digest of animal tissue	3.00
Yeast extract	5.00
Oxgall	10.00
Sodium chloride	5.00
Esculin	1.00
Ferric ammonium citrate	0.50
Sodium azide	0.25
Sodium citrate	1.000
Final pH : 7.1 ± 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. Sodium azide has a tendency to form explosive metal azides with plumbing materials. It is advisable to use enough water to flush off the disposables.

Directions

1. Suspend 42.75 grams of the medium in one liter 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.

Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Amber coloured, clear to slightly opalescent solution with a bluish tinge
Reaction of 4.275% Solution	pH : 7.1 ± 0.2 at 25°C
Gel Strength	Not Applicable

Expected Cultural Response: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Esculin Hydrolysis
1.	<i>Enterococcus faecalis</i> ATCC 29212	50 -100	good-luxuriant	positive reaction, blackening of medium
2.	<i>Escherichia coli</i> ATCC 25922	50 -100	none-poor	negative reaction
3.	<i>Staphylococcus aureus</i> ATCC 25923	50 -100	good	negative reaction
4.	<i>Streptococcus pyogenes</i> ATCC 19615	50 -100	none-poor	negative reaction

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

Test Procedure

Refer to appropriate references for standard test procedures.

Results

Refer to appropriate references and test 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 : Bile Esculin Azide Broth, Modified

Product Code : DM1321

Available Pack sizes : 500gm

References

1. Rochaix, 1924, Comt. Rend. Soc. Biol., 90:771.
2. Meyer and Schonfeld, 1926, Zentralbl. Bakteriol, Parasitenk. Infektionskr. Hyg. Abt. Orig. 99:402.
3. Swan, 1954, J. Clin. Pathol., 7:160.
4. Isenberg, Goldberg and Sampson, 1970, Appl. Microbiol. 20:433.
5. MacFaddin, 2000. Biochemical test for identification of medical bacteria, 3rd ed. Lippincott William & Wilkins, Baltimore, Md.

Further Information

For further information please contact your local MICROMASTER Representative.



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