Technical Information

Eugonic Broth

Product Code: DM 1429

Application: - Eugonic Agar is recommended for the cultivation of fastidious microorganisms like *Haemophillus, Neisseria, Posteurella, Brucella* and *Lactobacillus* species.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	15.000
Papaic digest of soyabean meal	5.000
Dextrose	5.000
Sodium chloride	4.000
Sodium sulphite	0.200
L-Cystine	0.200
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Eugonic Broth was developed by Pelczar and Vera [1] for cultivation of fastidious organisms like *Brucella.* When enriched with blood this medium can also be used to grow *Mycobacteria* and various pathogenic fungi including *Nocardia, Histoplasma* and *Blastomyces.* Niven used this media for detection of spoilage of meats [2]. Eugonic Broth was developed to obtain eugonic (luxuriant) growth of fastidious microorganisms like *Brucella* which are otherwise difficult to cultivate [5]. The basal medium supports rapid growth of lactobacilli associated with cured meat products, dairy products and other foods. APHA recommends Eugonic Broth for germinating anaerobic spores pasteurized at 104°C [3, 4]. Because large amount of sulfur and carbon sources have been added in the formulation organisms like *Bordetella* and *Neisseria* proliferate in Eugonic Broth. Therefore Eugonic Broth is recommended for the direct isolation of *Bordetella pertussis* and *Neisseria meningitides* from the test materials such as throat mucus, blood, cerebrospinal fluid, pleural fluid and other specimens. For the isolation of *Bacillus pumilus,* Eugonic Broth prior to sterilization [5] can be supplemented with 0.1% starch.

Casein enzymic hydrolysate and papaic digest of soyabean meal provide the nitrogen, vitamins and amino acids, which supports the growth of fastidious microbial species. The high concentration of dextrose is the energy source for rapid growth of bacteria. L-Cystine and sodium sulphite are added to stimulate growth. Sodium chloride maintains the osmotic balance of the media. The high carbohydrate content along with high sulfur (cystine) content improves growth with chromogenicity [4].

Methodology

Suspend 29.4 grams of powder media in 1000 ml distilled water. Shake well & heat if necessary with frequent stirring to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45°C and add 5 -10% v/v sterile defibrinated blood if desired. The blood may be chocolated by heating.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Yellow coloured, clear solution in tubes

Reaction
Reaction of 2.94% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH range 6.80-7.20

Cultural Response/ characteristices
DM 1429: Cultural characteristics observed with added 5-10%v/v sterile defibrinated blood after an incubation at 35-37°C for 48 hours (fungal cultures incubated at 25-30°C).

Organism	Inoculum (CFU)	Growth
Bacillus pumilus ATCC 14884	50-100	good (with 0.1% starch)
Brucella abortus ATCC 4315	50-100	good(under 3-5% CO2)
Candida albi cans ATCC 26790	50-100	good
Lactobacillus fermentum ATCC 9338	50-100	good
Neisseria meningitidis ATCC 13090	50-100	good
Streptococcus pneumoniae ATCC 6303	50-100	luxuriant(under 3-5% CO2)
Streptococcus pyogenes ATCC 19615	50-100	luxuriant(under 3-5% CO2)

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^{o} in sealable plastic bags for 2-5 days.

Further Reading

1. Pelczar and Vera J., 1949, Milk Plant Monthly 38:30
2. Niven C. F., Castellani A. G., and Allanson V., 1949, J. Bacteriol., 58:633.
3. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
4. Frank H. A., 1955, J. Bacteriol., 70:269.
5. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams & Wilkins, Baltimore, Md.

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