Eugonic Agar

M428

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
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 44.4 grams in 1000 ml distilled water. Heat to boiling 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, if chocolate agar plates are required.

Principle And Interpretation

Eugonic Agar was developed by Pelczar and Vera (1) for cultivation of fastidious organisms like *Brucella* . These media can also be used to grow *Mycobacteria* and various pathogenic fungi including *Nocardia, Histoplasma* and *Blastomyces* , when enriched with blood. Niven used this media for detection of spoilage of meats (2). Eugonic Agar was developed to obtain eugonic (luxuriant) growth of fastidious microorganisms like *Brucella* that are otherwise difficult to cultivate (5). The unnourished medium supports rapid growth of lactobacilli associated with cured meat products, dairy products and other foods. APHA recommends Eugonic agar, which is also used in germinating anaerobic spores pasteurized at 104°C (3, 4). Eugonic Agar is quite similar to Tryptone Soya Agar (M290) but more bacterial propagation is expected on Eugonic Agar. Organisms like *Bordetella* and *Neisseria* form minute colonies on Tryptone Soya Agar (M290). They may become large on Eugonic agar because large amount of sulfur and carbon sources have been added in addition to the Tryptone Soya Agar (M290) formula. Therefore this medium 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 Agar can be supplemented with 0.1% starch, prior to sterilization (5).

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).

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Yellow coloured, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.44% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response
M428: Cultural characteristics observed with added 5-10% sterile defibrinated blood after an incubation at 35-37°C for 48 hours (fungal cultures incubated at 25-30°C).

Organism	Inoculum (CFU)	Growth	Recovery
Bacillus pumilus ATCC 14884	50-100	good (with 0.1% starch)	50-70%
Candida albicans ATCC 26790	50-100	good	50-70%
Lactobacillus fermentum ATCC 9338	50-100	good	50-70%
Neisseria meningitidis ATCC 13090	50-100	good	50-70%
Streptococcus pneumoniae ATCC 6303	50-100	luxuriant(under 3-5% CO_2)	>=70%
Streptococcus pyogenes ATCC 19615	50-100	luxuriant(under 3-5% CO_2)	>=70%

Storage and Shelf Life
Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference
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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