Buffered Yeast Agar

M585

Buffered Yeast Agar is used as a semisynthetic medium for the cultivation of yeasts and moulds and for controlling bottle washing operations in soft drinks and related industries.

Composition**

Ingredients	Gms / Litre
Yeast extract	5.000
Dextrose	20.000
Ammonium sulphate	0.720
Ammonium dihydrogen phosphate	0.260
Agar	15.000
Final pH (at 25°C)	5.5±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 41 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 115°C for 20 minutes. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Yeasts grow well on a minimal medium containing only dextrose and salts. The addition of yeast extract allows faster growth so that during exponential or log phase growth, the cells divide every 90 minutes (1). Buffered Yeast Agar is prepared as per the modification of the yeast-salt medium described by Davis (2).

The medium contains yeast extract, which supplies B-complex vitamins to stimulate growth. Dextrose is the carbohydrate source. The reaction of this medium can be adjusted to required pH values by the addition of citric or lactic acid to the medium after sterilization. The following table shows the amount of the acids required to be added to 100 ml of Buffered Yeast Agar cooled to 50°C.

Volume of acid to be added to 100 ml of medium to achieve the desired pH

pH	1% w/v solution of Citric acid monohydrate (ml)	1% w/v solution of Lactic acid (ml)
4.75	1.26	0.125
4.5	2.24	0.2
4.25	3.92	0.3
4.0	6.16	0.45
3.75	9.52	0.7
3.5	14.56	1.17

Bunker (3, 4) described a practical method for assessing the efficiency of the bottle cleaning operations. In this method, the bottle under test is converted into a roll-tube culture by coating it internally with the medium. When the agar sets, the bottle is incubated and the colonies are counted and examined. This method gives better results than rinsing the bottle and subsequently plating the rinsings. When used for this purpose, the agar concentration in Buffered Yeast Agar should be increased by 1% w/v (before sterilization).

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

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

Reaction
Reaction of 4.1% w/v aqueous solution at 25°C. pH : 5.5±0.2

pH
5.30-5.70

Cultural Response
M585: Cultural characteristics observed after an incubation at 25-30°C for 48-72 hours.

Organism	Inoculum (CFU)	Growth	Recovery
Candida albicans ATCC 10231	50-100	good-luxuriant	>=70%
Saccharomyces cerevisiae ATCC 9763	50-100	good-luxuriant	>=70%
**Aspergillus brasiliensis ATCC 16404*	50-100	good-luxuriant	

*Key *- Formerly known as Aspergillus niger*

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. Ausubel, Brent, Kingston, Moore, Seidman, Smith and Struhl, 1994, Current Protocols in Molecular Biology, Current Protocols, Brooklyn, N.Y.
2. Davis J. G., 1931, J. Dairy Res., 3:133.
3. Bunker H. J., 1952, Lab. Prac., 18:354.
4. Bunker H. J., 1956, Wallerstein Lab. Communications, 19(65): 143.

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