Yeast Malt Agar (YM Agar) (ISP Medium No. 2)

M424

Yeast Malt Agar (YM Agar) is used for the isolation and cultivation of yeasts, moulds and other aciduric microorganisms.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	5.000
Yeast extract	3.000
Malt extract	3.000
Dextrose	10.000
Agar	20.000
Final pH (at 25°C)	6.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 20.5 grams in 490 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. For preparing selective media acidify the media up to pH 3.0 to 4.0 by aseptically adding 1 vial of 10% Lactic Acid Solution (FD095). DO NOT HEAT the media after addition of acid. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Yeast Malt Agar is formulated as per Wickerham (1, 2) for isolation and cultivation of yeasts, moulds and other aciduric microorganisms. Fungistatic materials such as sodium propionate and diphenyl are added to YM Agar to eliminate moulds and thus permits enumeration of yeasts from mixed population. YM Agar is also recommended by APHA (3).

Wickerham suggested the use of Yeast Malt Broth (M425) as an enrichment medium for yeasts by adding a layer of sterile paraffin oil (about 1 cm) on the surface of inoculated broth. After the growth occurs it should be streaked on YM Agar to obtain isolated colonies of fermentative species. To isolate fermentative as well as oxidative strains, acidified YM Broth (M425) is placed on a rotary shaker for 1 or 2 days which favors development of yeast cells while the sporulation of moulds is prevented and yeasts can be isolated by streaking on YM Agar.

Peptic digest of animal tissue serves as a source of carbon, nitrogen and essential nutrients. Yeast extract supplies vitamin B complex nutrients and other growth factors. Malt extract serves as an additional source of carbon. Dextrose is the carbohydrate and energy source. To increase the selectivity, the media can be acidified by the addition of sterile10% Lactic Acid or by addition of 10% HCl, tartaric acid or 10% citric acid. Alternatively antibiotics (penicillin 20U/ml or streptomycin to a final concentration of 40mcg/ml) can be added. Acidified agar medium should not be reheated.

Quality Control

Appearance
Cream to beige homogeneous free flowing powder

Gelling
Firm, comparable with 2.0% 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 : 6.2±0.2

pH
6.00-6.40

Cultural Response

M424: Cultural characteristics observed after an incubation at 25-30°C for 40-72 hours.

Organism	Inoculum (CFU)	Growth at pH 3.4	Growth at pH 6.2	Recovery
Cultural Response				
**Aspergillus brasiliensis ATCC 16404*	50-100	good-luxuriant	good-luxuriant	>=50%
Candida albicans ATCC 10231	50-100	good-luxuriant	good-luxuriant	>=50%
Escherichia coli ATCC 25922	50-100	inhibited	good-luxuriant	>=50%
Lactobacillus casei ATCC 9595	50-100	poor	good-luxuriant	>=50%
Lactobacillus leichmannii ATCC 4797	50-100	poor	good-luxuriant	>=50%
Saccharomyces cerevisiae ATCC 9763	50-100	good-luxuriant	good-luxuriant	>=50%

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. Wickerham L. J., 1951, U.S. Dept. Agric. Tech. Bull. No.1029.
2. Wickerham L. J., 1939, J. Tropical Med. Hyg., 42:176.
3. Downes F. P. and Ito K.,(Ed.), 2001, Compendium of Methods for the Microbiological examination of Foods, 4th Ed, APHA Inc. Washington DC.

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