Beer Spoilage Broth

M2084

Intended use

Recommended as a selective medium used for the detection of contaminating/ spoilage microorganisms in beer.

Composition**

Ingredients	Gms / Litre
V8 Juice	18.100
Sodium acetate	6.000
Polysorbate 80 (Tween 80)	1.000
Dipotassium hydrogen phosphate	2.000
L-Cystine hydrochloride	0.020
Carbohydrate mix	25.00
L-Ascorbic acid	0.100
Growth factors	2.600
Indicator dye	0.070
Final pH (at 25°C)	5.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 54.90 grams in 500 ml purified/distilled water and 500 ml of degassed beer. Mix thoroughly. Heat if necessary to dissolve the medium completely. Dispense into tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Beer Spoilage Broth is used for detection of beer contaminating organisms. Based on the principle of Kozulis and Page (7) who developed Universal Beer Agar Medium, a basal medium to which beer is added. Beer is the product of yeast fermentations of barley grains. The yeast usually employed in beer fermentation is one of two species of *Saccharomyces* (1). The gram-positive bacteria are generally regarded as the most hazardous beer spoilage organisms in modern breweries, especially the lactobacilli and the pediococci. Even though the detection of beer spoilage organisms by cultivation in laboratory media does not always provide the specificity and the sensitivity required, the use of selective media and incubation conditions still appear to be the method preferred by breweries. Due to the presence of beer in these media, it is selective for growth of microorganisms that have adapted themselves to the existent conditions in the brewery. Among the media reported so far, no single medium can be used to detect all members within a group of specific beer spoilage organisms and further work on the development of improved substrates are required both for bacteria and wild yeasts (5).

V8 Juice provides nitrogenous, carbonaceous compounds, vitamins of B complex group. Growth factors provides other essential nutrients for the growth of common spoilage organisms. The medium contains sodium acetate which is inhibitory to other organisms. Ascorbic acid, is a carbon source for lactic acid bacteria. Indicator dye turns yellow.on carbohydrate utilization. Phosphate buffers the medium.

Type of specimen

Brewery samples

Specimen Collection and Handling

For brewery samples follow appropriate techniques for handling specimens as per established guidelines (5).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Due to nutritional variations, some strains may show poor growth.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Cream to beige homogeneous free flowing powder

Colour and Clarity of prepared medium

Pale green coloured clear to slightly opalescent solution

Reaction

Reaction of 5.49% w/v aqueous solution is at 25°C pH : 5.8±0.2

pH

5.60-6.00

Cultural Response

Cultural characteristics observed under anaerobic condition, after incub ation at 30-35°C for 4 days.

Organism	Inoculum (CFU)	Growth	Colour of medium
Lactobacillus brevis ATCC 8291	50-100	good	Light yellow to yellow
Pediococcus acidilactici ATCC 8042	50-100	good-luxuriant	Light yellow to yellow
Pediococcus damnosus ATCC 29358	50-100	good-luxuriant	Light yellow to yellow

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Use before expiry date on the label.
Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,6).

Reference

1. Alcamo I. E., 2001, Fundamentals of Microbiology, 6th Ed., Jones and Bartlett Publishers.

2. Back W., 1980, Brauwelt, 120:1562.

3. Dachs, 1981, Brauwelt, 1778.5. Nishikawa M. and Kohgo M., 1985, Master Brew Am Association Q22-61.

4. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.

5. Jespersen L., Jakbsen M., 1996, Int. J. Food Microbiol., 33:139-55

6. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

7. Kozulis J.A. and Page H.E., 1968, Proc. Am. Soc. Brew. Chem., 52:58.

Revision : 00 / 2018