Zobell Marine Agar 2216

M384

Intended use

Recommended for cultivation, isolation and enumeration of heterotrophic marine bacteria.

Composition**

Ingredients	Gms / Litre
Peptone	5.000
Yeast extract	1.000
Ferric citrate	0.100
Sodium chloride	19.450
Magnesium chloride	8.800
Sodium sulphate	3.240
Calcium chloride	1.800
Potassium chloride	0.550
Sodium bicarbonate	0.160
Potassium bromide	0.080
Strontium chloride	0.034
Boric acid	0.022
Sodium silicate	0.004
Sodium fluorate	0.0024
Ammonium nitrate	0.0016
Disodium phosphate	0.008
Agar	15.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 55.25 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and Pour in sterile Petri plates.

Principle And Interpretation

Microorganisms in an aquatic environment may occur at all depths ranging from the surface region to the very bottom of the ocean trenches. The top layers and the bottom sediments harbor higher concentration of microorganisms (6). Marine microorganisms are vital to ecological cycles because they form the foundations of many food chains (1). Zobell Marine Agar formulated by Zobell (10), has a composition that mimics seawater (5) and thus helps the marine bacteria to grow abundantly. This medium has been used for the growth of marine bacteria (7,8).

Zobell Marine Agar 2216 contains the nutrients, which are required for the growth of marine bacteria.These media have minerals as in seawater (9) and peptone and yeast extract as the sources of nutrients for the marine bacteria as reported by Jones (3). High amount of salt content is used to simulate seawater. Other minerals are used to mimic the mineral composition of seawater.

Pour plate and spread plate techniques can be used for enumeration. In the pour plate technique, the agar must be cooled to 42°C before inoculation to support thermo-sensitive nature of most marine bacteria. In spread plate technique, the medium is poured while still hot and allowed to cool and solidify before inoculation.

Type of specimen

Marine water samples.

Specimen Collection and Handling:

For marine water samples follow appropriate techniques for handling specimens as per established guidelines (7,8).

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. The medium is recommended for the isolation of marine bacteria.
2. Further biochemical and serological testing must be carried out for further identification.

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 temmperature.

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 opalescent gel forms in Petri plates.

Reaction

Reaction of 5.53% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH

7.40-7.80

Cultural Response

Cultural characteristics observed after an incubation at 20-25°C for 40-72 hours .

Organism	Inoculum (CFU)	Growth	Recovery
Vibrio fischeri ATCC 7744	50-100	good-luxuriant	>=50%
Vibrio harveyi ATCC 14126	50-100	good-luxuriant	>=50%

Storage and Shelf Life

Store below 10-30°C in a tightly closed container and the prepared medium at 20-30°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 (2,4).

Reference

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