Technical Information

Zobell Marine Agar 2216

Product Code: DM 1384

Application: - Zobell Marine Agar 2216 is recommended for cultivation, isolation and enumeration of heterotrophic marine bacteria.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	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 (25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Microorganisms in an aquatic environment may occur at all level ranging from the surface region to the very bottom of the ocean trenches. The top layers and the bottom sediments harbour higher concentration of microorganisms [1]. Marine microorganisms are vital to maintain ecological cycles because they form the foundations of many food chains [2]. Zobell Marine Agar formulated by Zobell [3], has a composition that mimics seawater [4] and thus helps the marine bacteria to grow profusely. This medium has been used for the growth of marine bacteria [5, 6].

Zobell Marine Agar 2216 contains the nutrients,which are required forthe growth of marine bacteria.These media have minerals as in seawater [7] and peptic digest of animal tissue and yeast extract as the sources of nutrients for the marine bacteria as reported by Jones [8]. 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.

Methodology

Suspend 55.25 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and Pour in sterile Petri plates.

Quality Control

Physical Appearance
Cream to greenish 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
Reactionof 5.53% w/v aqueous solution at 25°C.pH:-7.6±0.2

pH range 7.40-7.80

Cultural Response/ characteristices
DM 1384: 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

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^{o} in sealable plastic bags for 2-5 days.

Further Reading

1. Pelczar M.J..Jr., Reid R.D., Chan E.C.S., 1977, Microbiology, 4th Edi, Tata McGraw-Hill Publishing Delhi
2. Alcamo E.I.,2001, Fundamentals of Microbiology, 6th Ed., Jones AND Barlett Publishers
3. ZoBell C. E., 1941, J. Mar. Res., 4:42.
4. Lyman J. and Fleming R. H., 1940, J. Mar. Res. 3:134.
5. Sizemore R. K. and Stevenson L. H., 1970, Appl. Microbiol., 20:991.
6. Weiner R. M., Segall A. M. and Colwell R. R., 1985, Appl. Environ. Microbiol., 49:83.
7. Zobell C. E., 1940, J. Marine Research , 3:134
8. Jones, 1960, Bact. Proc. Pg. 36 (A29)

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