MARINE BROTH 2216 (ZOBELL MARINE BROTH) TM 208

For cultivation of heterotrophic marine bacteria

Composition

Ingredients	Gms/Ltr.
Sodium chloride	19.450
Magnesium chloride	8.80
Peptic digest of animal tissue	5.00
Sodium sulphate	3.24
Calcium chloride	1.80
Yeast extract	1.00
Potassium chloride	0.550
Sodium bicarbonate	0.16
Ferric citrate	0.10
Potassium bromide	0.080
Strontium chloride	0.034
Boric acid	0.022
Sodium silicate	0.004
Disodium phosphate	0.008
Sodium fluorate	0.0024
Ammonium nitrate	0.0016

***** Dehydrated powder, hygroscopic in nature, store, in a dry place in tightly- sealed containers below 25°C and protect from direct Sunlight.

Instructions for Use

Dissolve 40.25gms in 1000ml of distilled water. Gently heat to boiling with gentle swirling and dissolve the medium completely. Dispense into tubes. Sterilize by autoclaving at 15 psi (121°C) for 15 minutes. Cool to 45-50°C.

Appearance: Cream to yellow, clear to slightly opalescent gel
pH (at 25°C): 7.6 ± 0.2

Principle

MARINE BROTH 2216 (ZOBELL MARINE BROTH) is used for cultivation of heterotrophic marine bacteria. Chitosan in the larval rearing system may function as a *Vibrio* growth depressant. As the risk of infection is directly related to pathogen density, depressed cell counts may help to prevent larval vibriosis. Chitosan is a cationic polysaccharide derived from chitin, a natural polymer of N-acetyl glucosamine commonly found in crustacean and insect exoskeletons, and in fungal cell walls. It is a biocompatible and biodegradable natural polymers and has interesting biological activity. There are several reports on the anti-microbial activity of chitosan against several species of bacteria, yeasts and fungi. It has been suggested that its antibacterial effect is based on its ability to increase permeability of the outer membrane of Gram-negative bacteria. In addition, it has wound healing properties, and has been used in cosmetics, drug delivery, food protection, and as an immunostimulant. However, its application for disease management in aquaculture has not been considered. This medium is prepared with high salt content which helps to stimulate sea water. The medium contains the nutrients Peptic digest of animal tissue and Yeast extract as the sources of nutrients for the marine bacteria as reported by

Jones. High amount of salt content is used to simulate seawater. Other minerals are used to mimic the mineral composition of seawater. Agar is the solidifying agent.

Interpretation

Cultural characteristics observed after inoculating (10^3CFU / ml), on incubation at 20 - 25 °C for 24 - 72 hours.

Microorganisms	ATCC	Inoculum (CFU/ml)	Growth
Vibrio fischeri	7744	10^3	Good
Vibrio harveyi	14126	10^3	Good

References

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3. Buck, J.D., and R.C. Cleverdon. The spread plate as a method for the enumeration of marine bacteria. Limnol. Oceanogr. Weiner, R.M., A.M. (1960).
4. Segall, and R.R. Colwell. (1985).