TAT Broth (Base)

Casein-peptone Lecithin Polysorbate Broth (Base)

For diluting samples of pharmaceutical, cosmetic and other raw materials or final products when determining microbial counts.

This broth complies with the recommendations of the United States Pharmacopeia XXVI (2003).

Mode of Action

The relatively high casein peptone content of this medium provides optimal conditions for the spore germination and regeneration of even damaged microorganisms. Lecithin and polysorbate 20 inactivate many antimicrobial compounds. KOHN et al. (1963), CHIORI et al. (1965) and HUGO and FRIER (1969) reported that soya lecithin inactivates cetrimide, chlorohexidine, chlorinated phenols, desqualinium acetate and polymyxin B. According to EVANS (1964) and BROWN (1966), polysorbate 20 inactivates phenols, phenol derivatives, benzoic acid, p-hydroxybenzoic acid and their esters. The combination of the two can inactivate quaternary ammonium and phosphonium compounds. Thioglycollate has not been included to inactivate preservatives containing heavy metals as the thioamino acids of the casein peptone inactivate most of these compounds and TREADWELL et al. (1958) and GIBBS (1964) have shown that thioglycollate inhibits the spores of many Bacillus and Clostridium species, especially when they are already damaged by heat.

Typical Composition (g/litre)

Peptone from casein 20.0; soya lecithin 5.0.

Also to be added:

polysorbate (Tween® 20) 40 ml.

Preparation

Suspend 25 g in 0.96 litre in accordance with USP, heat in a water bath set at 50 °C for about 30 minutes until completely dissolved. Add 40 ml polysorbate, autoclave (15 min at 121°C).

pH: 7.1 ± 0.2 at 25 °C.

The prepared broth is clear and yellowish; slight turbidity may occur because of the contents of lecithin.

Experimental Procedure and Evaluation

As recommended by USP or in accordance with the purpose for which the medium is used.

Literature

BROWN, M.R.W.: Turbidimetric method for the rapid evaluation of antimicrobial agents. Inactivation of preservatives by nonionic agent. – **J. Soc. Cosm. Chem., 17**; 185-195 (1966).

CHIORO, C.O., MAMBLETON, R.Q., a. RIGBY, G.: The inhibition of spores of Bacillus subtilis by cetrimide retained on washed membrane spores. – **J. Appl. Bact., 28**; 322-330 (1965).

EVANS, W.P.: The solubilisation and inactivation of preservatives by nonionic detergents. – **J. Pharm. Pharmacol., 16**; 323-331 (1964).

GIBBS, P.A.: Factors affecting the germination of spores of Clostridium bifermentans. – **J. gen. Microbiol., 37**; 41-48 (1964).

HUGO, W.B., a. FRIER, M.: Mode of action on the antibacterial compound desqualinium acetate. – **Appl. Microbiol., 17**; 118-127 (1969).

KOHN, S.R., GERSHENFELD, L., a. BARR, M.: Effectiveness of antibacterial agents presently employed in ophthalmic preparations as preservatives against Pseudomonas aeruginosa. – **J. Pharm. Sci., 52**; 967-974 (1963).

TREADWELL, P.E., JANN, G.J., a. SALLE, A.J.: Studies on factors affecting the rapid germination of spores of Clostridium botulinum. – **J.Bact., 76**; 549-556 (1958).

United States Pharmacopeia XXVI. Chapter "Microbial Limit Tests", 2003.

Ordering Information

Product	Merck Cat. No.	Pack size
Casein-peptone Lecithin Polysorbate Broth (Base)	1.11723.0500	500 g
Tween® 20	8.17072.1000	1000 ml

Quality control

Test strains	Growth
Escherichia coli ATCC 25922	good
Streptococcus pyogenes ATCC 12344	good
Staphylococcus aureus ATCC 25923	good
Clostridium perfringens ATCC 10543	good
Candida albicans ATCC 10231	good