TRYPTIC SOY AGAR

INTENDED USE

Tryptic (Trypticase) Soy Agar (TSA) is used for the isolation and cultivation of nonfastidious and fastidious microorganisms. It is not the medium of choice for anaerobes.

SUMMARY AND EXPLANATION

The nutritional composition of TSA has made it a popular medium for many years. It is the medium specified as Soybean- Casein Digest Agar Medium in General Chapter <61> of the USP when performing enumerations tests for nonsterile pharmaceutical products.[1] The medium is used in USP Growth Promotion testing and when testing the suitability of counting methods in the presence of product. TSA has a multitude of uses in the clinical laboratory including maintenance of stock cultures, plate counting, isolation of microorganisms from a variety of specimen types and as a base for media containing blood.[2] It is also recommended for use in industrial applications when testing water and wastewater, food, dairy products, and cosmetics.

Since TSA does not contain the X and V growth factors, it can conveniently be used in determining the requirements for these growth factors by isolates of *Haemophilus* by the addition of X, V and XV Factor Strips to inoculated TSA plates.[2]

PRINCIPLE

The combination of casein and soy peptones in TSA renders the medium highly nutritious by supplying organic nitrogen, particularly amino acids and longer-chained peptides. The sodium chloride maintains osmotic equilibrium. Agar is the solidifying agent.

Haemophilus species may be differentiated by their requirements for X and V factors. Paper strips impregnated with these factors are placed on the surface of the medium after inoculation with the test organism. Following incubation, a zone of growth around the strip indicates a requirement for the factor(s).

REAGENTS (FORMULA)

Pancreatic Digest of Casein	15.0	g
Pancreatic Digest of Soybean	5.0	g
Sodium Chloride	5.0	g
Agar	15.0	g
Deionized Water	1000.0	ml

PROCEDURE

For clinical specimens, refer to appropriate standard references for details on testing protocol to obtain isolated colonies from specimens using Tryptic/Trypticase Soy Agar.[2]

For water, food, dairy or cosmetic samples, refer to appropriate standard references for details on test methods using Tryptic/ Trypticase Soy Agar.[3]

For pharmaceutical samples, refer to USP General Chapter <61> for details on the examination of nonsterile products and performing microbial enumeration tests using Tryptic/Trypticase Soy Agar.[1]

Since many pathogens require carbon dioxide on primary isolation, plates may be incubated in an atmosphere containing approximately 3-10% CO_2. Incubate plates at 35 ± 2°C for 18-24 hours.

EXPECTED RESULTS

After incubation, it is desirable to have isolated colonies of organisms from the original sample. Subculture colonies of interest so that positive identification can be made by means of biochemical and/or serological testing.[2] Consult appropriate texts for the growth patterns produced by the various strains of Haemophilus.[2]

QUALITY CONTROL

All lot numbers have been tested and have been found to be acceptable. Customers can test products using the following quality control organisms. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

Organisms	Incubation	Results
Staphylococcus aureus ATCC 25923	35 ± 2°C for 18-48 hours	Growth
Escherichia coli ATCC 25922	35 ± 2°C for 18-48 hours	Growth

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BIBLIOGRAPHY

1. United States Pharmacopeial Convention, Inc. 2008. The United States pharmacopeia 31/The national formulary 26, Supp. 1, 8-1-08, online. United States Pharmacopeial Convention, Inc., Rockville, Md.

2. Forbes, Sahm and Weissfeld. 2007. Bailey & Scott's diagnostic microbiology, 12th ed. Mosby Inc., St. Louis, Mo.

3. Eaton, Rice and Baird (ed.). 2005. Standard methods for the examination of water and wastewater, 21st ed., online. American Public Health Association, Washington, D.C.

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