Condalab

Reference: 5000 **Technical Data Sheet**

Product: CE IVD **TRYPTICASEIN SOY AGAR (T.S.A) (EUROPEAN PHARM)**

Specification

General purpose solid medium containing animal and plant peptone according to Pharmacopoeial Harmonised Method and ISO Standards.

Presentation

	Packaging Details	Shelf Life	Storage
10 Prepared bottle Bottle 125 ml with: 100 ± 3 ml	1 box with 10 bottles 125 ml. Injectable cap: Plastic screw inner cap. The use of syringes needles with a diameter greater than 0.8 mm is not recommended.	16 months	2-25 ºC

Composition

Composition (g/l):

Peptone from casein	15.0
Soy peptone	5.00
Sodium chloride	5.00
Agar	15.0

Description /Technique

Description

TSA is a widely used medium containing two peptones which support the growth of a wide variety of organisms, even that of very fastidious ones such as Neisseria, Listeria, Brucella, etc. It is frequently used for routine diagnostic purposes due to its reliability and its easily reproducible results.

The following list includes some of its most common applications:

1. Sensitivity testing, either by the Kirby-Bauer system or by following the WHO guidelines. Both systems recommend the use of the Mueller-Hinton Agar or verification purposes.
2. The medium provides, with added blood, perfectly defined haemolysis zones, while preventing the lysis of erythrocytes due to its sodium chloride content.
3. It can be used for the preparation of an exceptionally nutrient 'chocolate ´ agar, thanks to the richness of its peptones.
4. In a reducing environment or with a CO2 enriched atmosphere, it provides an excellent medium for the isolation of Brucella and Neisseria. It may be made selective by using additives.
5. Most streptococci grow in this medium though clear differences can be observed from one species to another.
6. Tryptic Soy Agar can be used as a selective medium for the count of urine samples although differentiation must be done on selective differential media.
7. Several tests for the differentiation and identification of staphylococci can be performed on this medium, provided suitable additives are used.
8. Yeast, particularly Candida species, can grow in this medium forming very characteristic colonies.
9. Chromogenic pseudomonas frequently produce pigmentation on TSA and are therefore easily recognized.
10. A vast bibliography documents its applications in the food industry.
11. It has been frequently used in the Health industry to produce antigens, toxins, etc...
12. Its simple and inhibitor-free composition makes it suitable for the detection of antimicrobial agents in food and other products.
13. A balanced and high nutrient value together with a lack of fermentable carbohydrates make this medium ideal for maintaining bacterial strains.
14. Classical media for microbiological examination of non-sterile products according to Pharmacopeial Harmonised Methods.

Technique:

Melt the medium contained in the bottles in a water bath or in a microwave oven, avoiding overhating before pouring into Petri dishes when cooled to room temperature.

Once solidified on a flat surface, Spread the plates by streaking methodology or by spiral method.

The inoculated plates are incubated at 30-35 º C for 24-72 h (bacteria) and 3-5 days for fungi (yeast & molds). Examined daily.

(Incubation times greater then those mentioned above or different incubation temperatures may be required dpending on the sample, on the specifications,... This medium can be inoculated directly or after enrichment broth).

After incubation, enumerate all the colonies that have appeared onto the surface of the agar.

Each laboratory must evaluate the results according to their specifications.

Calculate total microbial count per ml of sample by multiplying the average number of colonies per plate by the inverse dilution factor if streaked a diluted sample. Report results as Colony Forming Unit (CFU's) per ml or g along with incubation time and temperature.

Note: The solid mediums can be melted in different ways: autoclave, bath and, if the customer considers appropriate, also the microwave. Whenever the microwave option is chosen, it is necessary to take certain safety measures to avoid breaking of the containers, such as loosening the screw cap and putting the bottle or tube in a water bath in the microwave. The fusion temperature and time will depend on the shape of the container, the volume of medium and the heat source. Avoid overheating as both the heating periods.

Quality control

Physical/Chemical control

Color : Straw-coloured yellow pH: 7.3 ± 0.2 at 25ºC

Microbiological control

Melt Medium - Prepare Plates - According to harmonized pharmacopoeial monographs, ISO standards and test methods
Spiral Spreading: Practical range 50 - 100 CFU (productivity).
Analytical methodology according to ISO 11133:2014/A1:2018; A2:2020.

Aerobiosis. Incubation at 30-35 ºC. Read after 18-24 h to 72 h for bacteria and 3-5 days for fungi.

Microorganism	Growth
Escherichia coli ATCC® 8739, WDCM 00012	Good (≥70%)
Staphylococcus aureus ATCC® 6538, WDCM 00032	Good (≥70%)
Bacillus subtilis ATCC® 6633, WDCM 00003	Good (≥70%)
Candida albicans ATCC® 10231, WDCM 00054	Good (≥70%)
Ps. aeruginosa ATCC® 9027, WDCM 00026	Good (≥70%)
Salmonella typhimurium ATCC® 14028, WDCM 00031	Good (≥70%)
Aspergillus brasiliensis ATCC® 16404, WDCM 00053	Good (≥70%)
L. monocytogenes ATCC® 13932, WDCM 00021	Good (≥70%)
Clostridium perfringens ATCC® 13124, WDCM 00007 (37ºC)	Good (≥70%)
Clostridium sporogenes ATCC® 19404, WDCM 00008	Good (≥70%)
Stph. aureus ATCC® 25923, WDCM 00034	Good (≥70%)

Sterility Control

Incubation 48 h at 30-35 ºC and 48 h at 20-25 ºC: NO GROWTH.
Check at 7 days after incubation in same conditions.

Bibliography

· ATLAS, R.M. & L.C. PARKS (1993) Handbook of Microbiological Media. CRC Press, Inc. London.
· COLIPA (1997) Guidelines on Microbial Quality Management (MQM). Brussels.
· DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Food, 4th ed, ASM, Washington D.C.
· EUROPEAN PHARMACOPOEIA 10.0 (2020) 10th ed. § 2.6.13. Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. EDQM. Council of Europe. Strasbourg.
· FDA (Food and Drug Adminstrations) (1998) Bacteriological Analytical Manual. 8th ed. Revision A. AOAC International. Gaithersburg. MD.
· HORWITZ, W. (2000) Official Methods of Analysis of AOAC INTERNATIONAL, 17th ed. Gaithersburg, MD. USA.
· ISO 9308-1 Standard (2000) Water Quality. Detection and enumeration of E. coli and coliform bacteria. Membrane filtration method.
·ISO 11731 Standard (2017) Water Quality. - Enumeration of Legionella.
. ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
· ISO 18415 Standard (2017) Cosmetics - Microbiology - Detection of specified and non-specified microorganisms.
· ISO 21149 Standard (2017) Cosmetics - Microbiology - Enumeration and detection of aerobic mesophilic bacteria.
· ISO 21150 Standard (2015) Cosmetics - Microbiology - Detection of Escherichia coli.
· ISO 22717 Standard (2015) Cosmetics - Microbiology - Detection of Pseudomonas aeuruginosa.
· ISO 22718 Standard (2015) . Cosmetics - Microbiology - Detection of Staphylococcus aureus.
· ISO 22964 (2017) Microbiology of the food chain.- Horizontal method for the detection of *Cronobacter spp*
· PASCUAL ANDERSON, MªRª (1992) Microbiología Alimentaria. Díaz de Santos S.A., Madrid.
· USP 33 - NF 28 (2011) <62> Microbiological examination of non-sterile products: Test for specified microorganisms. Harmonised Method. USP Corp. Inc. Rockville. MD. USA.