

Also known as

Casein Soybean Digest Agar

Specification

General purpose medium containing animal and plant peptone, according to Pharmacopoeial Harmonized Methods and ISO standards.

Formula * in g/L

Casein peptone	15.0
Soy peptone	5.0
Sodium chloride	5.0
Agar	15.0

Final pH 7.3 ±0.2 at 25 °C

* Adjusted and /or supplemented as required to meet performance criteria

Directions

Mix 40 g of powder in 1 L of distilled water. Let it soak and bring to the boil to dissolve the agar. Sterilize in the autoclave at 121°C for 15 minutes.

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:

- . The medium provides, with added blood, perfectly defined haemolysis zones, while preventing the lysis of erythrocytes due to its sodium chloride content.
- . It can be used for the preparation of an exceptionally nutrient 'chocolate' agar, thanks to the richness of its peptones. 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.
- . Most streptococci grow in this medium though clear differences can be observed from one species to another.
- . Several tests for the differentiation and identification of staphylococci can be performed on this medium, provided suitable additives are used.
- . Yeast, particularly *Candida* species, can grow in this medium forming very characteristic colonies.
- . Chromogenic pseudomonads frequently produce pigmentation on TSA and are therefore easily recognized.
- . A vast bibliography documents its applications in the food industry.
- . It has been frequently used in the Health industry to produce antigens, toxins, etc...
- . Its simple and inhibitor-free composition makes it suitable for the detection of antimicrobial agents in food and other products.
- . A balanced and high nutrient value together with a lack of fermentable carbohydrates make this medium ideal for maintaining bacterial strains.
- . If it is desired to use as an alternative medium in confirming the presumptive *Legionella* colonies isolated on the BCYE medium, the pH of the TSA must be adjusted so that after sterilization it is 6.8 ± 0.2 at 25 °C.

Quality control
Incubation temperature: 30-35 °C/ 37 °C ±1 **Incubation time:** 24-48 h - 5 days

Inoculum: Practical range 50-100 CFU (productivity), according to Ph. Eur. and ISO 11133:2014/Amd 1:2018. Spiral Plate Method

Microorganism	Growth	Remarks
<i>Bacillus subtilis</i> ATCC® 6633	Productivity > 0.70	-
<i>Staphylococcus aureus</i> ATCC® 6538	Productivity > 0.70	-
<i>Escherichia coli</i> ATCC® 8739	Productivity > 0.70	-
<i>Candida albicans</i> ATCC® 10231	Productivity > 0.70	48 h / 5 d
<i>Pseudomonas aeruginosa</i> ATCC® 9027	Productivity > 0.70	-
<i>Aspergillus brasiliensis</i> ATCC® 16404	Productivity > 0.70	3-5 d (Black sporulation)
<i>Listeria monocytogenes</i> ATCC® 13932	Productivity > 0.70	-
<i>Escherichia coli</i> ATCC® ser 0157:H7	Productivity > 0.70	-
<i>Bacillus cereus</i> var. <i>mycoides</i> ATCC® 11778	Productivity > 0.70	-
<i>Enterococcus faecalis</i> ATCC® 29212	Productivity > 0.70	-
<i>Clostridium perfringens</i> ATCC® 13124	Productivity > 0.70	-
<i>Staphylococcus aureus</i> ATCC® 25923	Productivity > 0.70	-
<i>Clostridium sporogenes</i> ATCC® 19404	Productivity > 0.70	-

References

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- ISO 9308-1 Standard (2000) Water Quality. Detection and enumeration of E. coli and coliform bacteria. Membrane filtration method.
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- 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 aeruginosa.
- ISO 22718 Standard (2015) . Cosmetics - Microbiology - Detection of Staphylococcus aureus.
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- PASCUAL ANDERSON, M^aR^a (1992) Microbiología Alimentaria. Díaz de Santos S.A., Madrid.
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Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).