

Starch Agar

Intended Use

Starch Agar is used for cultivating microorganisms being tested for starch hydrolysis.

Summary and Explanation

In 1915,¹ Vedder formulated Starch Agar for cultivating *Neisseria*. Since then, other media have been developed that are superior to Starch Agar for the isolation of *Neisseria* spp., including enriched GC medium base. Starch Agar is used in differentiating microorganisms based on the starch hydrolysis test.

Principles of the Procedure

Beef extract provides the nitrogen, vitamins, carbon and amino acids in Starch Agar. Starch reacts with Gram Iodine to give a blue color. Organisms hydrolyzing starch through amylase production will produce a clearing around the isolate while the remaining medium is blue. Agar is the solidifying agent.

User Quality Control

Identity Specifications

Difco™ Starch Agar

Dehydrated Appearance:	Light beige, free-flowing, homogeneous.
Solution:	2.5% solution, soluble in purified water upon boiling. Solution is light amber, slightly opalescent.
Prepared Appearance:	Light amber, slightly opalescent.
Reaction of 2.5% Solution at 25°C:	pH 7.5 ± 0.2

Cultural Response

Difco™ Starch Agar

Prepare the medium per label directions. Inoculate with a single streak of undiluted test organism and incubate at 35 ± 2°C for 40-48 hours. Test for starch hydrolysis by removing growth from each streak to expose the agar and flood plates with Gram Iodine.

ORGANISM	ATCC™	RECOVERY	STARCH HYDROLYSIS
<i>Bacillus subtilis</i>	6633	Good	+
<i>Escherichia coli</i>	25922	Good	–
<i>Staphylococcus aureus</i>	25923	Good	–
<i>Streptococcus pyogenes</i>	19615	Good	–

Formula

Difco™ Starch Agar

Approximate Formula* Per Liter

Beef Extract.....	3.0	g
Soluble Starch	10.0	g
Agar	12.0	g

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

Directions for Preparation from Dehydrated Product

1. Suspend 25 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes.
4. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Starch Hydrolysis Test

Flood the surface of a 48-hour culture on Starch Agar with Gram Iodine.

For a complete discussion of the collection, isolation and identification of microorganisms, refer to appropriate references.^{2,3}

Expected Results

Starch hydrolysis (+) is indicated by a colorless zone surrounding colonies. A blue or purple zone indicates that starch has not been hydrolyzed (-).

References

1. Vedder, 1915. J. Infect. Dis. 16:385.
2. Isenberg and Garcia (ed.). 2004 (update, 2007). Clinical microbiology procedures handbook, 2nd ed. American Society for Microbiology, Washington, D.C.
3. Murray, Baron, Jorgensen, Landry and Pfaller (ed.). 2007. Manual of clinical microbiology, 9th ed. American Society for Microbiology, Washington, D.C.

Availability

Difco™ Starch Agar

Cat. No. 272100 Dehydrated – 500 g