

Technical Information

PYR Broth

Product Code: DM 2789

Application: - PYR Broth is recommended for the isolation and identification of *Streptococcus pyogenes*.

Composition**

Ingredients	Gms / Litre
Beef heart infusion from	10.00
Peptic digest of animal tissue	20.000
Dextrose	2.000
Sodium chloride	2.000
Disodium phosphate	0.400
Sodium carbonate	2.500
Chromogenic mixture	0.100
Final pH (at 25°C)	7.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

PYR Broth is a presumptive test for both group A and group D enterococcal streptococci (1). The PYR test determines the activity of enzyme L-pyrrolidonyl arylamidase (PYR) produced by *Streptococcus pyogenes* but not by other b- haemolytic *streptococci* (2). Free b-naphthylamide is then detected by addition of the diazo dye complex, N,N- dimethylaminocinnamaldehyde. Development of a red colour is indicative of PYR hydrolysis (3). PYR test is a highly sensitive test, which replaces bacitracin and salt tolerance (growth in 6.5% NaCl) tests (1). PYR Broth is recommended for detection and presumptive identification of *S. pyogenes* based on PYR hydrolysis (4).

Todd Hewitt Broth Base (DM 2313) acts as the basal medium to which substrate for PYR enzyme is added (3).

Beef heart infusion and peptic digest of animal tissue supply nitrogenous nutrients. Dextrose is the carbohydrate serving as an energy source. Disodium phosphate serves as buffering agent and sodium chloride helps to maintain osmotic balance. Chromogenic mixture provides substrate for PYR enzyme. After an incubation at 35-37°C for 18-24 hours, add 1 drop of PYR reagent (R1043) directly to suspected surface growth on plate. Observe for colour change after 2 minutes. The chromogenic mixture is hydrolysed by *S. pyogenes* to L-pyrrolidone and b-naphthylamine. The PYR reagent reacts with b-naphthylamine to form a red coloured Schiffs Base indicating a positive reaction.

Methodology

Suspend 37 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & heat if necessary to dissolve the medium completely. Shake well and dispense as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder.

Colour and Clarity

Light yellow coloured clear solution.



Dehydrated Culture Media
Bases / Media Supplements

Reaction

Reaction of 3.7% w/v aqueous solution at 25°C. pH: 7.8±0.2.

pH Range

7.60-8.00

Cultural Response

DM2789: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	PYR (on addition of PYR reagent, R1044)
<i>Streptococcus pyogenes</i> ATCC 19615	50-100	luxuriant	positive, red colouration
<i>Enterococcus faecalis</i> ATCC 29212	50-100	luxuriant	positive, red colouration
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	negative
<i>Streptococcus agalactiae</i> ATCC 12386	50-100	luxuriant	negative

Storage and Shelf Life

Dried Media: Store dehydrated and prepared medium at 2 - 8°C in tightly closed container. Use before expiry date on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Facklam R. R., Thacker L. G, Fox B., Eriquez L., 1982, J. Clin. Microbiol., 15 (6), a, 987-990.
2. MacFaddin J. F., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd Edition, Lippincott Williams and Wilkins, N.Y. 407-410.
3. Koneman E. W., Allen S. D., Janda W. M., Schreckenberger P. C., Winn W. C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed., J. B. Lippincott Company.
4. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Tenover F. C., (Eds.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.

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