

## TECHNICAL PRODUCT INFORMATION

### Andrades Medium

Catalog No.: T0501 – w/Adonitol	Catalog No.: T505 – w/Lactose	Catalog No.: T0509 – w/Rhamnose
Catalog No.: T0502 – w/Arabinose	Catalog No.: T506 – w/Maltose	Catalog No.: T0510 – w/Salicin
Catalog No.: T0503 – w/Dextrose	Catalog No.: T507 – w/Mannitol	Catalog No.: T0511 – w/Sorbitol
Catalog No.: T0504 – w/Inositol	Catalog No.: T508 – w/Raffinose	Catalog No.: T0512 – w/Sucrose
		Catalog No.: T0513 – w/Xylose

### INTENDED USE:

Andrade's Media with added carbohydrates is used to determine the fermentation reactions of microorganisms, particularly members of the Enterobacteriaceae.

### HISTORY/SUMMARY:

The ability of microorganisms to metabolize various carbohydrates and related compounds to form organic acids is widely used as a tool for the identification of microorganisms<sup>1</sup>.

Andrade<sup>2</sup> suggested the use of decolorized acid fuchsin as an indicator to demonstrate acid production by microorganisms in a liquid medium.

### PRINCIPLES:

Andrade's medium consists of a sugar-free peptone broth with pH indicator to which a specific carbohydrate, or related compound, is added. Beef extract and peptone the carbon and nitrogen sources required for growth of a wide variety of organisms. Sodium Chloride maintains the osmotic balance. Microorganisms tested are differentiated by their ability to ferment the carbohydrate which has been added to the fermentation base medium. The use of 1% carbohydrate concentration is recommended to insure against a reversion of the reaction due to the depletion of the carbohydrate by certain microorganisms.

When a tube of medium is inoculated with a pure culture of an organism capable of metabolizing the specific substrate, the pH of the medium will fall due to acid production and is indicated by a change of the indicator color<sup>3</sup>. Andrade's medium uninoculated is colorless to pale straw color. When acid is produced it turns pink or red depending on the amount of acid produced.

### FORMULA:

#### ANDRADE'S BROTH

Component (per liter of purified water)	Amount
Peptic Digest of Animal Tissue	10.0 g
Sodium Chloride	5.0 g
Andrade's Indicator (see below)	5.0 g
Various Carbohydrates are added to final concentration of 1%	

Final pH: 7.0 ± 0.2 @ 25°C.

#### ANDRADE'S INDICATOR

Component (per liter of purified water)	Amount
Acid Fuchsin	0.5 g
Demineralized Water	100.0 mL
Sodium Hydroxide 1N	16.0 mL

**PRECAUTIONS:**

This medium may be used for IN VITRO DIAGNOSTIC USE. Media inoculated with isolates from clinical specimens should be handled with caution by adequately trained personnel under the supervision of a microbiologist. Media showing signs of deterioration or contamination must not be used. Inoculated tubes must be autoclaved before discarding. Media must be brought to room temperature before use.

**STORAGE:**

This medium should be stored in an upright position at 2-8°C. Adequate storage prolongs the life and quality of the product. Freezing and overheating will cause deterioration of the medium. This product should not be used beyond its expiration date. Expiration dates apply to unopened tubes and packages, which have been adequately stored.

**PROCEDURE:**

Incubate the inoculated media at 35-37°C; examine daily for the production of acid for up to 7 days. Acid reaction is indicated by the appearance of a pink or red color in the medium.

Use an uninoculated tube of Andrade's medium containing the appropriate carbohydrates as a control.

**QUALITY CONTROL:**

It is recommended that the user confirm the performance characteristics of this medium. Careful selection of test organisms must be made to obtain maximum information. Proper environmental conditions must be chosen to further ensure effective results.

**PERFORMANCE CHARACTERISTICS:**

Refer to references cited and other appropriate texts for growth and test responses.

**LIMITATIONS:**

The reactions observed on this media are not sufficient to speciate an organism. Additional physiological and serological reactions may be required.

**REFERENCES:**

- 1) Manual of Clinical Microbiology, Fourth Edition, Lennette, Balows, Housler and Shadomy, ASM, Washington, DC, 1985.
- 2) US Marine Hosp. Serv. Ann. Report, 335:339, 1985.
- 3) Diagnostic Microbiology, C.V. Mosby Co., St. Louis, 1982.
- 4) Diagnostic Procedures & Reagents, APHA Inc., N.Y.C., 1970
- 5) Identification of the Enterobacteriaceae, Edwards and Ewing, Third Edition, Burgess Publishing Co., Minneapolis, 1972.
- 6) Bergey's Manual of Systematic Bact., Volume 1, Krieg, ed al., the Williams and Wilkins Co., Baltimore, MD, 1984.