

## SAN FRANCISCO MEDIUM, MODIFIED

**CAT Nº: 1413**

Recommended for the growth of *Lactobacillus*

### FORMULA IN g/l

Tryptone	10.00	Beef Extract	2.00
Yeast Extract	7.00	Sodium Gluconate	2.00
Glucose	7.00	Tween 80	1.00
Fructose	7.00	L-Cysteine HCl	0.50
Maltose	7.00	Magnesium Sulfate	0.20
Sodium Acetate	5.00	Manganase Sulfate	0.05
Diammonium Citrate	5.00	Ferric Sulfate	0.01
Dipotassium Acid Phosphate	2.50	Bacteriological Agar	15.00

**Final pH 5.4 ± 0.2 at 25°C**

### PREPARATION

Suspend 71.26 grams of the medium in 850 ml of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121°C for 15 minutes. Cool to 45-50°C, and aseptically add 150 ml of a fresh solution of Yeast Extract. The prepared medium should be stored at 8-15°C. The color is pale amber, slightly opalescent.

The dehydrated medium should be homogeneous, free-flowing and pale beige in color. If there are any physical changes, discard the medium.

### USES

SAN FRANCISCO MEDIUM, MODIFIED is a medium described by Vogel et al. for the identification of Lactobacilli from Sourdough in 1994. Picozzi et al. modified this medium by adding 150 ml of a fresh Yeast extract solution instead of rye or wheat flour and baker's yeast components since these made the agar plates turbid and spongy.

Tryptone and Beef Extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Glucose, Fructose and Maltose are the fermentable carbohydrates providing carbon and energy. Yeast extract is a source of vitamins, particularly of the B-group. Sodium gluconate has been added as a stabilizing agent. Sodium acetate is added as a carbon source. Ammonium citrate at a low pH inhibits most microorganisms, including streptococci and molds, and limits swarming, but allows the growth of lactobacilli. Dipotassium Acid Phosphate is a buffer. Sulphate salts are ions required in a big variation of enzymatic reactions. L-Cysteine hydrochloride is the reducing agent. Bacteriological agar is the solidifying agent.

Incubate at 37 ± 2°C and observe after 18-24 hours.

### MICROBIOLOGICAL TEST

The following results were obtained from type cultures in the performance of the medium after incubation at a temperature of 37± 2°C, and observed after 18-24 hours.

Microorganisms	Growth
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<i>Lactobacillus acidophilus</i> ATCC 4356	Good
<i>Lactobacillus casei</i> ATCC 393	Good
<i>Escherichia coli</i> ATCC 25922	Moderate-Good
<i>Pseudomonas aeruginosa</i> ATCC 27853	Null-Light

## BIBLIOGRAPHY

Vogel *et al.* (1994). Identification of Lactobacilli from Sourdough and Description of *Lactobacillus pontis sp. nov.* International Journal of Systematic Bacteriology. April . 1994, p. 223-229

Picozzi *et al* (2005) Comparison of cultural media for the enumeration of sourdough lactic acid bacteria. Annals of Microbiology, 55 (4) 317-320

## STORAGE

Once opened keep powdered medium closed to avoid hydration.

