

Muller Kauffmann Broth Base

Cat. 1130

For the selective enrichment of Salmonella from meats and other foods

Practical information

Applications	Categories
Selective enrichment	Salmonella

Industry: Environmental monitoring / Clinical / Food



Principles and uses

Muller Kauffmann Broth Base is a recommended selective broth for isolating Salmonella from animal feces, polluted sewage water, food, milk, ice cream and pasteurized egg-base products.

Using more than one selective broth increases the isolation of Salmonella from samples with multiple sero types. It is also recommended to use Tetrathionate Broth (Cat. 1114) for the isolation of Salmonella.

Kauffmann modified the formula to include ox bile and brilliant green as selective agents to inhibit Gram-positive microorganisms. Sodium thiosulfate plus iodine result in tetrathionate formation, inhibiting coliforms and intestinal bacteria. Acidic tetrathionate decomposition products such as sulphuric acid are formed, which are neutralized by calcium carbonate, acting as a buffer. Salmonella and Proteus are not inhibited as they reduce tetrathionate. Meat peptone, beef and yeast extracts provide nitrogen, vitamins, minerals and amino acids essential for growth. Sodium chloride supplies essential electrolytes for transport and osmotic balance.

Iodine Solution
Potassium Iodide: 25 g
Iodine: 20 g
Distilled Water: 100 ml

Dissolve the potassium iodide in 5 ml of distilled water, add the iodine and gently warm the solution to dissolve completely. Make the volume reach 100 ml with distilled water.

Brilliant Green Solution
Brilliant Green: 0,1 g
Distilled Water: 100 ml

Add the brilliant green to the distilled water, shake and heat at 100°C for 30 minutes to ensure the dye has dissolved. Store in brown bottles.

Formula in g/L

Beef extract	0,9	Calcium carbonate	25
Meat peptone	4,5	Ox Bile	4,75
Sodium chloride	4,5	Sodium thiosulfate	40,7
Yeast extract	1,8		

Preparation

Suspend 82 grams of medium in one liter of distilled water. Mix well and dissolve by shortly heating with frequent agitation and cool it quickly. AVOID OVERHEATING. DO NOT AUTOCLAVE. A sediment of Calcium carbonate will remain. Aseptically add 20 ml/l of iodine solution and 10 ml/l of 0,1% Brilliant Green solution. Distribute in tubes or flasks after homogenizing the possible precipitate. Once added, DO NOT REHEAT. Use the medium on the same day it is produced.

Instructions for use

» For clinical diagnosis, the type of sample is feces.

- Add 10 g of the sample to 100 ml of medium.
- Shake vigorously and place flasks immediately in a 15 °C water-bath for 15 minutes.
- Incubate at 42-43 °C for 6-24 hours.
- Subculture to Brilliant Green Agar (Cat. 1078) after 18-24 hours and again after 48 hours.
- Incubate plates at 35±2 °C for 18-24 hours.

» For other uses not covered by the CE marking:

- Add 10 g of the sample to 100 ml of medium.
- Shake vigorously and place flasks immediately in a 15 °C water-bath for 15 minutes.
- Incubate at 42-43 °C for 6-24 hours.
- Subculture to Brilliant Green Agar (Cat. 1078) after 18-24 hours and again after 48 hours.
- Incubate plates at 35±2 °C for 18-24 hours.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
Calcium carbonate precipitates	Fine powder	Beige	Light green with white precipitate	8,0±0,2

Microbiological test

Incubation conditions: (42-43 °C / 6-24 h).

Microorganisms	Specification
Salmonella typhimurium ATCC 14028	Good growth
Escherichia coli ATCC 25922	Partially inhibited growth

Storage

Temp. Min.: 2 °C
Temp. Max.: 25 °C

Bibliography

Kauffmann, F. 1935. Weitere erfahrungen mit dem kombinierten anreicherungsverfahren fur Salmonella bazillen. Ztschr. F. Hyg. 117: 26-32.
A manual for recommended methods for the microbiological examination of poultry and poultry products. 1982.