

Kligler Iron Agar

Cat. 1364

For the presumptive test of *Yersinia enterocolitica*.

Practical information

Applications	Categories
Confirmation	<i>Yersinia enterocolitica</i>

Industry: Food



Principles and uses

Kligler Iron Agar is for presumptive tests of *Yersinia enterocolitica*.

Peptone digest of casein and meat peptone provide nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly of the B-group. Glucose and lactose are the fermentable carbohydrates producing acid, indicated by the phenol red indicator. The color changes that result are yellow for acid production and red for alkalization. Sodium thiosulfate is reduced to hydrogen sulfide, which reacts with the iron salt to give the black iron sulfide. Sodium thiosulfate is the H₂S indicator. Ferrous sulfate provides sources of sulfates and metallic ions. Bacteriological agar is the solidifying agent.

Interpretation of color changes:

- Yellow: glucose-positive (fermentation of glucose).
- Red or w/o changes: glucose-negative (glucose doesn't ferment).
- Black: Formation of H₂S.
- Bubbles: Formation of gas.

Slanted position:

- Yellow: Lactose-positive (use of lactose).
- Red or w/o change: Lactose-negative (no use of lactose).

Formula in g/L

Glucose	1	Bacteriological agar	15
Ferrous sulfate	0,2	Lactose	10
Meat peptone	3	Pancreatic digest of casein	20
Phenol red	0,025	Sodium chloride	5
Yeast extract	3	Sodium tiosulfate anhydrous	0,2

Preparation

Suspend 57,5 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Dispense into tubes and sterilize in autoclave at 121 °C for 15 minutes. Allow to cool in a slanted position in order to obtain butts of 1,5-2,0 cm depth.

Instructions for use

Once the colonies are purified in the Nutrient Agar (Cat.1060), spread them on Kligler Iron Agar and incubate at 30 °C for 24-48 hours.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Beige	Amber, slightly opalescent	7,4±0,2

Microbiological test

Incubation conditions: (30 °C / 24-48 h).

Microorganisms	Specification	Characteristic reaction
Shigella flexneri ATCC 12022	Good growth	Red slant, yellow base, H2S (-), gas (-).
Salmonella enteritidis ATCC 13076	Good growth	Red slant, yellow base, H2S (+), gas (+).
Proteus vulgaris ATCC 13315	Good growth	Red slant, yellow base, H2S (+), gas (-).
Escherichia coli ATCC 25922	Good growth	Yellow slant, yellow base, H2S (-), gas (+).
Yersinia enterocolitica ATCC 27729	Good growth	Red slant, yellow base, H2S (-), gas (-).
Citrobacter freundii ATCC 8090	Good growth	Yellow slant, yellow base, H2S (+), gas (+).

Storage

Temp. Min.: 2 °C
Temp. Max.: 25 °C

Bibliography

ISO 10273:2003 Microbiology of Food and animal feeding stuffs – Horizontal method for the detection of presumptive pathogenic Yersinia enterocolitica.