L-Ornithine Decarboxylation Medium ISO

Cat. 2149

For the biochemical confirmation of Cronobacter spp. in food products and environmental samples.

Practical information

Aplications	Categories
Confirmation	Cronobacter

Industry: Food / Dairy products

Regulations: ISO 22964

Principles and uses

L-Ornithine Decarboxylation Medium is used for the biochemical confirmation of Cronobacter spp. in food, in animal feed and in environmental samples.

ISO 22964 describes a horizontal method for the detection of Cronobacter spp. and recommend this medium for biochemical confirmation of Cronobacter spp.

Cronobacter (formerly Enterobacter sakazakii) is currently considered an emerging pathogen responsible for, un-weaned babies, risking severe meningitis and necrotic enterocolitis that can be the cause of mortality rate between 40-80%. The pathogenicity of Cronobacter for un-weaned babies' makes it necessary to review the manufacturing process of the milk-based products specialized for babies, guaranteeing the absence of the bacteria in the final product

Additional prevention measures at a hospital include the sanitary hygiene of the prepared food; reducing the time between the preparation and its administration, to impede the multiplication of microorganisms.

Yeast extract provides nitrogen, minerals, amino acids and vitamins essential for growth, particularly of the B-group. Glucose is the fermentable carbohydrate providing carbon and energy. L-ornithine is added to test the presence of the enzyme ornithine decarboxylase. If the organisms possess such enzyme, it will be activated in an acid environment created by the initial fermentation of glucose. Once the amino acid is decarboxylated, diamine putrescine is produced. The result is an alkalinization of the medium, which turns it a purple or violet. Organisms without the enzyme will remain acidic due to the fermentation, resulting in a yellow color in the medium. Bromocresol purple is a pH indicator to indicate decarboxylase activity.

Formula in g/L

Glucose	1	Bromocresol purple	0,015
Yeast extract	3	L-Ornithine monohydrochloride	10

Preparation

Suspend 14,0 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 ºC for 15 minutes.

Instructions for use

- Pre-enrich the test portion in a non-selective medium, Buffered Peptone Water BPW (Cat. 1402)
- Inoculate the culture obtained in BPW in the enrichment selective medium Cronobacter Selective Broth (CSB) (Cat. 2143).
- Plate out and identificate the colonies in the Chromogenic Cronobacrer Isolation Agar (CCI) (Cat. 1446).
- For confirmation, typical colonies are selected from the chromogenic agar, purified on a non-selective agar such as TSA (Cat. 1068) and biochemically characterized.
- Inoculate the L-Ornithine Decarboxylation Medium with each of the selected colonies to observe the decarboxylation of the L-Ornithine.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Violet	6,8 ± 0,2

Microbiological test

Incubation conditions: (37 ºC / 24±2 h)

Microrganisms	Specification
Cronobacter sakazakii ATCC 29544	Ornithine decarboxylation (+)

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

ISO normative 22964 Microbiology of the food chain — Horizontal method for the detection of Cronobacter spp.
GUILLAUME-Gentil, O., Sonnard, V. Kandahai, M.C., Mauragg, J.D. and Jootsen, H. A simple and Rapad Cultural Method for Detection of Enterobacter Sakazakii in environmental samples. Journal of Food. Protection, 68 (1), 2005, pp. 64-69.