Congo Red- Magnesium Oxalate (CR-MOX) Agar

M2103

Intended use

Recommended for the isolation of *Yersinia enterocolitica* from food and animal feeding stuffs. The composition and performance criteria of this medium are as per the specifications laid down in ISO 10273:2017.

Composition**

ISO specifications : Congo Red- Magnesium Oxalate (CR-MOX) Agar

Ingredients	g / L
Tryptone Soya Agar	40.00
Magnesium chloride, $6H_2O$	4.100
Sodium oxalate	2.700
Galactose	2.000
Congo red	0.050
Final pH (at 25°C)	7.30±0.2

M2103 : Congo Red- Magnesium Oxalate (CR-MOX) Agar

Ingredients	g / L
Tryptone	15.000
Soya peptone	5.000
Sodium chloride	5.000
Agar	15.000
Magnesium chloride, $6H_2O$	4.100
Sodium oxalate	2.700
Galactose	2.000
Congo red	0.050
Final pH (at 25°C)	7.30±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 46.67 grams (the equivalent weight of dehydrated medium per litre) in 1000 ml purified/distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Yersinia enterocolitica is the causative agent of Yersiniosis, a severe form of human gastroenteritis. The medium is recommended for the isolation of *Y. enterocolitica*, as per ISO 10273-2017 (1). It was developed to detect expression of virulence-associated calcium dependency and Congo red absorption in *Y. enterocolitica*.

Tryptone and soya peptone serve as source of carbon, nitrogen substances, long chain amino acids, vitamins and other essential growth factors. Galactose is the carbohydrate source. Magnesium chloride and sodium oxalate provide essential ions. Pathogenic strains are simultaneously demonstrated by calcium dependency and Congo red absorption.

Type of specimen

Food samples.

Specimen Collection and Handling

For food samples, follow appropriate techniques for sample collection and processing as per guidelines (2).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Cream to light orange homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Light orange coloured, clear to slightly opalescent gel forms in Petri plates.

Reaction

Reaction of 4.67% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH

7.10-7.50

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Yersinia enterocolitica NCTC 13769 (00216*)	50-100	good-luxuriant	>=50%	red small
Yersinia enterocolitica ATCC 23715 (00160*)	50-100	good-luxuriant	>=50%	colourless, large

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

Reference

1. Microbiology of the food chain Horizontal method for the detection of pathogenic *Yersinia enterocolitica* ISO 10273:2017

2. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

3. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.

4. Jorgensen,J.H., Pfaller , M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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