# MacCONKEY AGAR W/O CRYSTAL VIOLET (7236)

## Intended Use

**MacConkey Agar W/O Crystal Violet** is used for the isolation and differentiation of Gram-negative enteric bacilli.

## Product Summary and Explanation

MacConkey Agar is based on the bile salt-neutral red-lactose agar of MacConkey.[1] The original MacConkey medium was used to differentiate strains of *Salmonella typhosa* from members of the coliform group. Formula modifications improved growth of *Shigella* and *Salmonella* strains. These modifications include the addition of 0.5% sodium chloride, decreased agar content, altered bile salts, and neutral red concentrations. The formula changes improved differential reactions between enteric pathogens and coliforms.

MacConkey Agar W/O Crystal Violet is a differential medium and less selective than MacConkey Agar. The lack of Crystal Violet permits growth of enterococci, staphylococci, and *Mycobacterium* spp.

## Principles of the Procedure

Enzymatic Digest of Gelatin, Enzymatic Digest of Casein, and Enzymatic Digest of Animal Tissue are the nitrogen and vitamin sources in MacConkey Agar W/O Crystal Violet. Lactose is the fermentable carbohydrate. During Lactose fermentation, a local pH drop around the colony causes a color change in the pH indicator, Neutral Red, and bile precipitation develops. Bile Salts Mixture is the selective agent. Sodium Chloride maintains the osmotic balance of the medium. Agar is the solidifying agent.

## Formula / Liter

| | |
|---|---|
| Enzymatic Digest of Gelatin | 17 g |
| Enzymatic Digest of Casein | 1.5 g |
| Enzymatic Digest of Animal Tissue | 1.5 g |
| Lactose | 10 g |
| Bile Salts Mixture | 5 g |
| Sodium Chloride | 5 g |
| Neutral Red | 0.05 g |
| Agar | 12 g |

Final pH: 7.4 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

## Precautions

1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

## Directions

1. Suspend 52 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.

## Quality Control Specifications

**Dehydrated Appearance:** Powder is homogeneous, free flowing, and beige to pink-beige.

**Prepared Appearance:** Prepared medium is trace to slightly hazy and red-orange.

**Expected Cultural Response:** Cultural response on MacConkey Agar W/O Crystal Violet incubated aerobically at 35 ± 2°C and examined for growth after 18 - 24 hours.

| Microorganism | Approx. Inoclum (CFU) | Expected Results | |
|---|---|---|---|
| | | Growth | Reaction |
| *Enterococcus faecalis* ATCC® 29212 | 10 - 300 | Poor | Pink colonies |
| *Escherichia coli* ATCC® 25922 | 10 - 300 | Fair to excellent | Pink colonies |
| *Proteus mirabilis* ATCC® 12453 | 10 - 300 | Fair to excellent | Colorless colonies |
| *Salmonella typhimurium* ATCC® 14028 | 10 - 300 | Fair to good | Colorless colonies |
| *Staphylococcus aureus* ATCC® 25923 | 10 - 300 | Poor to fair | Pink colonies |

The organisms listed are the minimum that should be used for quality control testing.

## Test Procedure

Refer to appropriate references using MacConkey Agar W/O Crystal Violet for the isolation and identification of enteric organisms.[2]

## Results

Lactose-fermenting organisms grow as pink to brick-red colonies with or without a zone of precipitated bile. Non-lactose fermenting organisms grow as colorless or clear colonies. Swarming by *Proteus* spp. is reduced.

## Storage

Store dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

## Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

## Limitations of the Procedure

1. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
2. Although MacConkey Agar W/O Crystal Violet is a selective medium, it is less inhibitory than MacConkey Agar, allowing Gram-positive organisms to grow. Biochemical and serological testing using pure cultures are recommended for complete identification.
3. Incubation of MacConkey Agar W/O Crystal Violet under increased $CO_2$ has been reported to reduce growth and recovery of certain Gram-negative bacilli.[3]

## Packaging

| | | | |
|---|---|---|---|
| **MacConkey Agar W/O Crystal Violet** | **Code No.** | **7236A** | **500 g** |
| | | **7236B** | **2 kg** |
| | | **7236C** | **10 kg** |

## References


1. **MacConkey, A.** 1905. Lactose-fermenting bacteria in feces. J. Hyg. **5**:333-379.
2. **Murray, P. R., E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Yolken (eds.).** Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.
3. **Mazura-Reetz, G. T. Neblett, and J. M. Galperin.** 1979. MacConkey Agar: $CO_2$ vs. ambient incubation. Abst. Ann. Mtg. American Society for Microbiology. C179.


## Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.


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