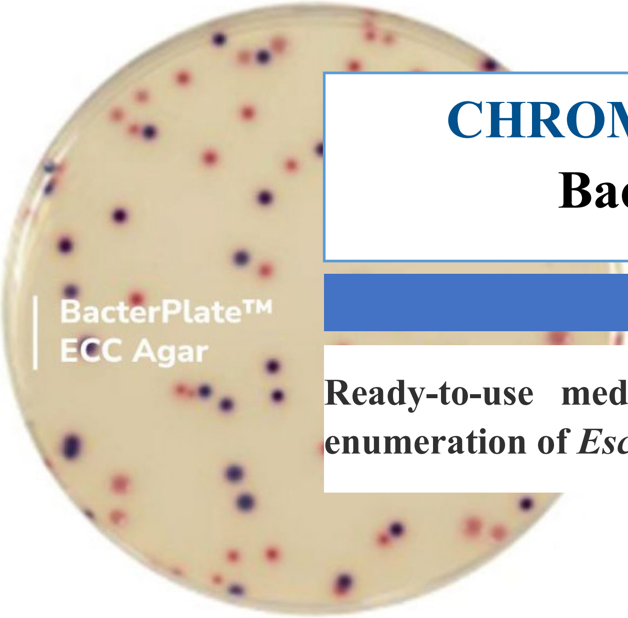
BacterLab Division

Issue date: 02/01/2025
Version: 01.2025



CHROMOGENIC AGAR MEDIUM
BacterChrom™ ECC Agar

Ready-to-use medium on 90mm plates for the detection and enumeration of *Escherichia coli* and coliforms

Code: 01041

1. INTENDED USE

BacterChrom™ ECC Agar is a selective agar for the simultaneous and specific enumeration without confirmation of *Escherichia coli* and of other *coliform* bacteria in human and animal food.

The packaging with semi-permeable Cellophane film helps balance the humidity of the environment during storage.

2. PRINCIPLES

The classification of coliforms is traditionally founded on their capacity to ferment lactose with a corresponding production of acid. The fermentation of lactose results from the successive cascade effect of two enzymes : first a permease responsible for the penetration of the sugar into the bacteria, and then a β-galactosidase which cuts the glucose to galactose, thereby actively entering into the fermentation process.

In 1989, Leclerc & Mossel proposed that the presence of β - galactosidase with coliforms be used as the main criteria for classification. The use of a synthetic chromogenic substrate, insensitive to variations in the permeability of lactose, allows the use of this enzyme by a colorimetric reaction.

94 to 97% of *Escherichia coli* possess a β-D-glucuronidase activity and that the same activity is only rarely encountered with other species (enzyme activity has been detected in a small number of strains of *Citrobacter*, *Enterobacter*, *Klebsiella*, *Salmonella*, *Shigella* and in *Yersinia*)

3. TYPICAL COMPOSITION

For 1 liter of medium

Peptones	18,4 g
Buffering system	5,8 g
Growth activators	3,55 g
Chromogenic mixture	0,44 g
Selective agents	1,61 g
Agar	11 g

pH of the ready-to-use medium at 25°C: 6,9 ± 0,2

4. PREPARATION

The environmental plates are ready-to-use, no preparation required.

5. INSTRUCTIONS FOR USE

- Allow the agar plates to stabilize at room temperature. Dry the plates in an incubator by partially opening the lids.
- Streak the sample onto the agar plates using a sterile inoculating loop.
- Incubate the plates at 35 ± 2°C for 18 – 24 hour.

6. RESULTS

- After incubation, count the number of colonies on plates containing fewer than 300 colonies.
- *Coliforms* other than *Escherichia coli* produce pink colonies.
- Colonies of *Escherichia coli* appear blue to violet and may sometimes exhibit a diffuse pink halo around the colonies.

7. QUALITY CONTROL

BacterLab ensures the quality of each product batch by testing with ATCC reference strains.

Reference strains	Incubation conditions	Expected results
E. coli ATCC 35218	35 – 37°C, 18 – 24 hours	$P_R \geq 50$ %
E. faecalis ATCC 29212		Inhibited, no growth
S. aureus ATCC 25923		Inhibited, no growth

8. STORAGE AND TRANSPORT CONDITIONS

- Storage: 2 – 8°C.
- Transportation: Ambient temperature.

9. PACKAGING

- Packaging: 10 plates/ box or as per customer request.

10. SHELF LIFE

- Expiration Date: 03 months from the manufacturing date.

11. BIBLIOGRAPHY

- Le Minor, L., & Ben Hamida, F. (1962). Avantages de la recherche de la β-galactosidase sur celle de la fermentation du lactose en milieu complexe dans le diagnostic bactériologique, en particulier des Enterobacteriaceae. *Annales de l'Institut Pasteur (Paris)*, 102: 267-277.
- Kilian, M., & Bülow, P. (1976). Rapid diagnosis of Enterobacteriaceae. I. Detection of bacterial glycosidases. *Acta Pathologica et Microbiologica Scandinavica, Sect. B*, 84: 245-251.
- Adams, M.R., Grubb, S.M., Hamer, A., & Clifford, M.N. (1990). Colorimetric enumeration of *Escherichia coli* based on β-glucuronidase activity. *Applied and Environmental Microbiology*, 56: 2021-2024.
- Manafi, M., Kneifel, W., & Bascomb, S. (1991). Fluorogenic and chromogenic substrates used in bacterial diagnostics. *Microbiological Reviews*, 55: 335-348.
- Coiffier, O. (1992). Les bactéries coliformes, p. 303-323, dans les groupes microbiens d'intérêt laitier, CEPIL, Paris.
- Solabia Group. (2023). Technical Data Sheet COMPASS® ECC AGAR. Retrieved from:https://www.solabia.com/biokar-diagnostics/wp-content/uploads/sites/6/2023/05/TDS_COMPASS-ECC-AGAR_BK202_ENv2.pdf