



## Bifidobacterium Agar, Modified

M1858

Bifidobacterium Agar, Modified is a selective medium recommended for the isolation of the Bifidobacterium species from faeces or stool specimens.

### Composition\*\*

Ingredients	Gms / Litre
Peptone special	22.220
Corn starch	0.970
Sodium chloride	4.830
Glucose	2.500
Lactulose	2.500
Cysteine hydrochloride	0.500
Riboflavin	0.010
Agar	14.490
Final pH ( at 25°C)	5.5±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 48.02 grams in 1000 ml 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 and aseptically add 1 vial of Bifidobacterium Selective Supplement (FD285). Mix well before pouring into sterile Petri plates.

### Principle And Interpretation

The genus *Bifidobacterium* is the third most numerous bacterial populations found in the human intestine after *Bacteroides* and *Eubacterium*. It is an anaerobic bacteria that makes up the gut microbial flora. It can be isolated from a variety of materials such as human and animal feces, sewage and from the oral cavity. Their main habitat in humans is the large intestine where they are among the major groups of normal intestinal bacteria. It resides in the colon and have health benefits for their hosts. Bifidobacteria are also associated with lower incidences of allergies (1, 2). Since their pathogenicity is low, bifidobacteria and lactobacilli are used as probiotics to improve the composition of the intestinal flora in case of disorders. Additionally, use of probiotics has been discussed to improve certain extraintestinal disorders or syndromes, e.g. vaginitis, *Helicobacter pylori* infection, and cystic fibrosis (3).

Beerens described Bifidobacterium Medium which is based on Columbia Agar base. The medium is also supplemented with propionic acid, and the pH of the medium is 5.0 (4). Propionic acid is inhibitory to fungi and many bacteria other than Bifidobacteria, such as intestinal *Bacteroides* and *Enterobacteriaceae*. The low pH of the medium further contributes to inhibit other predominating organisms of human feces, such as *Bacteroides* and *Eubacterium* species. Cysteine is a reducing agent. Bifidobacterium Agar, Modified is a slight modification of the original medium. It contains lactulose, a sugar used as a prebiotic that is preferably fermented by Bifidobacteria. Glucose is a carbon source. Riboflavin is a vitamin for many Bifidobacteria (5).

### Quality Control

#### Appearance

Cream to yellow coloured homogeneous free flowing powder

#### Gelling

Firm, comparable with 1.45% Agar gel

#### Colour and Clarity of prepared medium

Amber coloured clear to slightly opalescent gel forms in Petri plates

#### Reaction

Reaction of 4.80% w/v aqueous solution at 25°C. pH : 5.5±0.2

**pH**

5.30-5.70

**Cultural Response**

Cultural characteristics observed with added Bifidobacterium Selective Supplement (FD285) after an incubation at 35-37°C for 24-48 hours in an anaerobic conditions.

**Cultural Response**

Organism	Inoculum (CFU)	Growth	Recovery
<b>Cultural Response</b>			
<i>Bifidobacterium bifidum</i> ATCC 15696	50-100	luxuriant	>=50%
<i>Bacteroides fragilis</i> ATCC 23745	50-100	none-poor	<=10%
<i>Bifidobacterium infantis</i> ATCC 25962	50-100	luxuriant	>=50%
<i>Lactobacillus acidophilus</i> ATCC 4356	50-100	none-poor	<=10%
<i>Escherichia coli</i> ATCC 25922	50-100	none-poor	<=10%
<i>Bifidobacterium breve</i> ATCC 15698	50-100	luxuriant	>=50%

**Storage and Shelf Life**

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

**Reference**

1. Björkstén B., Sepp E., Julge K., Voor T., and Mikelsaar M., 2001, J. Allergy Clin. Microbiol., Volume 108, Issue 4, 516-520.
2. Guarner F., and Malagelada J. R., 2003, The Lancet, Vol. 361, Issue 9356, 8 February 2003, 512-519.
3. Gorbach, S.L. 2002. Probiotics in the third millenium. Dig. Liver Dis. 34 (suppl. 2):S2-S7.
4. Beerens, H. 1990. An elective and selective isolation medium for Bifidobacterium spp. Lett. Appl. Microbiol. 11: 155-157.
5. Nebra, Y., and A.R. Blanch. 1999. A new selective medium for Bifidobacterium spp. Appl. Env. Microbiol. 65: 5173-5176.

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