

Bifidobacterium Identification Kit

Intended Use

A panel of 12 tests for identification of *Bifidobacterium* species (Kit contains sterile medium for Catalase Detection and 11 different carbohydrates-Arabinose, Cellobiose, Fructose, Lactose, Maltose, Mannose, Melibiose, Raffinose, Salicin, Sucrose, Xylose).

Summary

Bifidobacteria are Gram-positive, non-spore-forming, non-motile, rod-shaped, saccharolytic anaerobes that produce acetic and lactic acids from carbohydrates without the generation of CO₂. The complete list of organisms that is possible to identify with this system is given in the identification index at the end of this package insert.

Principle

Microxpress® Bifidobacterium Identification Kit is a standardized identification system, comprising 12 miniature biochemical tests for the identification of *Bifidobacterium*. This kit contains sterile media for colorimetric identification using biochemical test and carbohydrate utilization tests based on principle of pH change and substrate utilization designed to identify various metabolic properties of different bacterial species. On incubation for an appropriate period, the media are examined for colour change. The results of these tests on the suspected organism are then compared to known standards to confirm its identification.

Kit Contents

1. 1 Kit of Bifidobacterium Identification Kit
2. Technical Product Insert with Result Interpretation Chart, Result Entry Datasheet and Identification Index

Note: Microxpress® Bifidobacterium Identification Kit contains sufficient material to perform one test.

Biochemical Tests

Microxpress® Bifidobacterium Identification Kit is a reagent set for laboratory use only.

Kit comprises of sterile test medium for:

- a) Catalase Detection (V3)
- b) Arabinose Utilization (V21)
- c) Cellobiose Utilization (V22)
- d) Fructose Utilization (V24)
- e) Maltose Utilization (V29)
- f) Lactose Utilization (V28)
- g) Mannose Utilization (V31)
- h) Melibiose Utilization (V32)
- i) Raffinose Utilization (V33)
- j) Salicin Utilization (V47)
- k) Sucrose Utilization (V37)
- l) Xylose Utilization (V39)

Additional Materials Required

0.9% saline, micropipettes, culture media, activated 2% glutaraldehyde solution, sterile test tubes, incubator/water bath at 37°C±2°C.

Directions

Preparation of Inoculum:

1. Isolate the organism to be identified on Trypticase Phytone-Yeast Agar Medium (TPY).
2. Pick up a single well-isolated colony and streak on to TPY agar slant for enrichment and incubate at 30°C±1°C for 48 hours.
3. Observed for good growth.
4. Wash the growth with 2-3 mL sterile saline.

5. Match the turbidity of this suspension to McFarland standard number 0.5.

Note: Erroneous false negative results may be obtained if the inoculum turbidity is less than McFarland standard number 0.5.

Inoculation of the Vials:

1. Bring the kit components to room temperature before testing.
2. Open the kit aseptically.
3. Inoculate each vial with 100 µL of the above-prepared inoculum by surface inoculation method.
4. Incubate at 30°C±1°C and read the result at 48 hours of incubation.

Identification Index

Organisms / Tests	Catalase Detection	Arabinose Utilization	Cellobiose Utilization	Mannose Utilization	Lactose Utilization	Maltose Utilization	Melibiose Utilization	Raffinose Utilization	Sucrose Utilization	Salicin Utilization	Fructose Utilization	Xylose Utilization
<i>Bifidobacterium adolescentis</i>	-	ND	ND	ND	+	ND	ND	ND	ND	ND	ND	ND
<i>Bifidobacterium bifidum</i>	-	-	-	-	+	-	+	-	+	-	+	-
<i>Bifidobacterium breve</i>	-	-	+	+	+	+	+	+	-	+	+	-
<i>Bifidobacterium dentium</i>	-	ND	ND	ND	V	ND	ND	ND	ND	ND	ND	ND
<i>Bifidobacterium infantis</i>	-	ND	ND	-	+	-	ND	-	ND	ND	-	-
<i>Bifidobacterium longum</i>	-	+	-	+	+	+	+	+	+	-	+	+

Key:

Based on % strains showing reactions following symbols have been assigned from laboratory results and standard references.

+: 90% or more strains are positive; -: 90% or more strains are negative; V: Variable; ND: Not Detected

Result Interpretation Chart

Code	Test	Reagent to be added	Principle	Original colour of medium	Positive reaction	Negative reaction
V3	Catalase Detection	3% H ₂ O ₂ solution	Detects catalase activity	Colourless to cream	Effervescence seen	No effervescence seen
V21	Arabinose Utilization	-	Detects arabinose utilization	Red	Yellow	Red / Pink
V22	Cellobiose Utilization	-	Detects cellobiose utilization	Red	Yellow	Red / Pink
V24	Fructose Utilization	-	Detects fructose utilization	Red	Yellow	Red / Pink
V28	Lactose Utilization	-	Detects lactose utilization	Red	Yellow	Red / Pink
V29	Maltose Utilization	-	Detects maltose utilization	Red	Yellow	Red / Pink

Code	Test	Reagent to be added	Principle	Original colour of medium	Positive reaction	Negative reaction
V31	Mannose Utilization	-	Detects mannose utilization	Red	Yellow	Red / Pink
V32	Melibiose Utilization	-	Detects melibiose utilization	Red	Yellow	Red / Pink
V33	Raffinose Utilization	-	Detects raffinose utilization	Red	Yellow	Red / Pink
V37	Sucrose Utilization	-	Detects sucrose utilization	Red	Yellow	Red / Pink
V47	Salicin Utilization	-	Detects salicin utilization	Red	Yellow	Red / Pink
V39	Xylose Utilization	-	Detects xylose utilization	Red	Yellow	Red / Pink

Result Entry Data Sheet

Sample Number	V3 Catalase Detection	V21 Arabinose Utilization	V22 Cellobiose Utilization	V24 Fructose Utilization	V28 Lactose Utilization	V29 Maltose Utilization
Sample Number	V31 Mannose Utilization	V32 Melibiose Utilization	V33 Raffinose Utilization	V47 Salicin Utilization	V37 Sucrose Utilization	V39 Xylose Utilization

Interpretation of Results

1. Interpret results as per the standards given in the result interpretation chart.

Remarks

1. Microexpress® Bifidobacterium Identification Kit is an *In vitro* diagnostic kit for laboratory and professional use only. Not for medicinal use.
2. This kit cannot be used directly on clinical specimens. Only pure cultures should be used to obtain optimum results.
3. Do not use damaged or leaking kits. Avoid contact of reagents with skin and eyes.
4. Erroneous false negative results may be obtained if inoculum turbidity is less than McFarland standard number 0.5.
5. At times, the organism may give contradictory results because of mutation or media used for isolation, cultivation and maintenance. Results are prominent when fresh and enriched culture is used.
6. In case of carbohydrate fermentation some microorganisms may show weak reaction. Incubate further for 24-48 hours. Orange colour seen after 24-48 hours should be a negative reaction.
7. Identification index has been compiled based on standard references and results of tests obtained in the laboratory.
8. Clinical samples and microbial cultures should be considered as pathogenic biohazard and handled accordingly. Good laboratory practices and hazard precautions must be observed at all times.

Storage and Stability

1. Store the kit at 2°C-8°C. Do Not Freeze.
2. Stability of the kit is as per the expiry date mentioned on the label.

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. Clarke P.H. And S.T. Cowan, Biochemical Methods for Bacteriology, J. Gen. Microbiol., 1952, Vol. 6: 187-197.
2. Hadadji M., Benama R., Saidi N., Henni D. E., Kihal M., 2005, Identification of cultivable Bifidobacterium species isolated from breast-fed infants feces in West-Algeria, African Journal of Biotechnology, Vol. 4 (5): 422-430.
3. Winn, W. C. (2006), Koneman's color atlas and textbook of *et al.*, diagnostic microbiology, Lippincott Williams & Wilkins.
4. Practical Medical Microbiology, Mackie & McCartney, 13th edition 1989, Edited by J. G. Collee, J. P. Duguid.
5. Zinedine A. and Faid M., 2007, Isolation and Characterization of Strains of Bifidobacteria with Probiotic Properties *In vitro*, World Journal of Dairy & Food Sciences, Vol. 2(1): 28-34.
6. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat. No.	Product Description	Pack Size
203020540001	Biochemical Identification Kit	1 Kit (1 Test)

Disclaimer

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.
