TOS Propionate Agar Base ISO

Cat. 2011

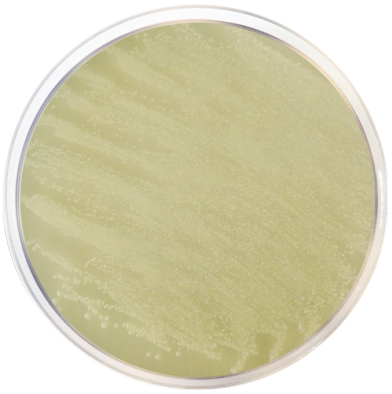
In combination with MUP, allows the direct detection of viable Bifidobacteria.

Practical information

Aplications	Categories
Detection	Bifidobacterium

Industry: Dairy products

Regulations: ISO 29981



Principles and uses

TOS Propionato Agar Base is a medium according to ISO 29981 for the direct detection of viable Bifidobacteria. The method is applicable to milk products such as fermented and non-fermented milks, milk powders, infant formulae, and starter cultures where these microorganisms are present and viable, and in combination with other lactic acid bacteria.

Casein peptone provides nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is source of vitamins, particularly the B-group. Magnesium sulfate allows the detection of small numbers or injured Bifidobacteria. Ammonium sulfate acts as a nitrogen source during growth. Potassium phosphates act as a buffer system. L-Cysteine hydrochloride is the reducing agent. Transgalacto-oligosaccharide (TOS) enhances the growth of bifidobacteria used in dairy products as is an specific growth factor for all bifidobacteria whereas other lactic acid bacteria cannot utilize this saccharide. Sodium propionate inhibits the accompanying flora. The antibiotic, mupirocin lithium salt (MUP), inhibits the growth of most lactic acid bacteria commonly used in fermented and non-fermented dairy products.

Formula in g/L

Ammonium sulfate	3	Bacteriological agar	15
Casein peptone	10	Dipotassium phosphate	4,8
Galactooligosaccharide TOS	10	L-Cysteine hydrochloride	0,5
Magnesium sulfate heptahydrated	0,2	Monopotassium phosphate	3
Sodium propionate	15	Yeast extract	1

Typical formula g/L * Adjusted and/or supplemented as required to meet performance criteria.

Preparation

Suspend 62,5 grams of the medium in 990 ml of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. This medium is heat sensitive. It is recommended to autoclave small quantities (95-190 ml). Sterilize in autoclave at 115±3 ºC for 15 minutes. Cool to 48 ºC in a water bath and if desired, aseptically add two vials of MUP Selective Supplement (Cat. 6074). Homogenize gently and dispense into sterile containers.

NOTE: After autoclaving the medium is slightly opalescent. The opalescency disappear when the medium is cooled to 48±1 ºC. The base is stable during 4 hours in a water bath.

Instructions for use

For the enumeration of presuntive Bifidobacteria according to ISO 29981:

- Prepare the initial sample according to the raw material.
- Perform the decimal dilutions

- Inoculate 1 ml of each dilution on empty Petri dishes. Pour 12-15 ml of the prepared propionate TOS medium. Mix the content without incorporing air.
- When the medium solidifies, incubate the plates in an anaerobic incubator at 37 °C for 72±3 h.
- Counting and confirmation of colonies.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Amber	6,7±0,2

Microbiological test

Incubation conditions: (37 ºC / 72±3 h).

Microorganisms	Specification	Characteristic reaction
Bifidobacterium breve ATCC 15700	Good growth	White colonies
Streptococcus salivarius subsp. thermophilus ATCC 19258	Total inhibition	
Lacticaseibacillus casei ATCC 393	Total inhibited	

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

ISO 29981/ IDF 220. Milk products – Enumeration of presumptive bifidobacteria – Colony count technique at 37ºC (2010).