

IVD in vitro diagnosticum - For professional use only



Bismuth Sulfite Agar acc. to WILSON-BLAIR

Bismuth sulfite agar acc. to WILSON-BLAIR

Cat. No. 1.05418.0500/5000
(500 g, 5 kg)

Selective agar introduced by WILSON and BLAIR (1927, 1931) for the isolation and differentiation of *Salmonella typhi* and other salmonellae from clinical specimens, e.g. feces.

See also General Instruction of Use

Warnings and precautions see www.merck-chemicals.com

Principle

Microbiological method

Mode of Action

Brilliant green and bismuth largely inhibit the accompanying bacterial flora. Colonies of H₂-S-positive salmonellae exhibit blackening due to the formation of iron sulfide. Reduction of bismuth ions to metallic bismuth produces a metallic lustre around the colonies (McCOY 1962).

Typical Composition (g/litre)

Meat extract 5.0; peptone from meat 5.0; Pepton from Casein 5.0; D(+)glucose 5.0; di-sodium hydrogen phosphate 4.0; iron(III) sulfate 0.3; brilliant green 0.025; bismuth sulfite indicator 8.0; agar-agar 15.0.

Preparation and Storage

Cat. No. 1.05418. Bismuth Sulfite Agar acc. to WILSON-BLAIR (500 g/ 5 Kg)

Usable up to the expiry date when stored dry and tightly closed at +15 to +25°C. Protect from light.

After first opening of the bottle the content can be used up to the expiry date when stored dry and tightly closed at +15 to +25°C.

Suspend 47.5 g/litre, mix the resulting precipitate to give a uniform suspension, pour plates to give thick layers (25 ml).

■ Do not autoclave.

pH: 7.6 ± 0.2 at 25 °C.

The prepared medium is turbid and green in colour.

■ **The freshly prepared medium is strongly inhibitory and is thus especially suitable for heavily contaminated specimen, e.g. feces.**

Acc. to FDA-BAM the medium should be prepared 1 day before use, store dark. Loss of selectivity after 48h.

Specimen

e.g. Stool .

Clinical specimen collection, handling and processing , see general instructions of use.

Experimental Procedure and Evaluation

Inoculate by thinly spreading the sample or material from an enriched culture on the surface of the medium.

Incubation: up to about 48 hours at 35 °C aerobically.

Salmonella colonies often display blackening after 18 hours of incubation, the metallic sheen appears several hours later depending on the age of the medium.

Appearance of Colonies Microorganisms

Black colonies with sheen surrounded by brownish-black zones	Salmonella typhi
Black or greenish-gray colonies, may have sheen, with or without darkening of the surrounding medium	Salmonella spp.
Small, green to brown colonies, sometimes mucoid	Coliform bacteria, Proteus and others

Quality control

Test strains	Growth	Black centre	Metallic sheen
Salmonella typhimurium ATCC 14028	good / very good	+	+
Salmonella choleraesuis ATCC 13312	good / very good	+	+
Salmonella enteritidis NCTC 5188	good / very good	+	+
Salmonella arizonae ATCC 13314	good / very good	+	+
Salmonella aboni NCTC 6017	good / very good	+	+
Escherichia coli ATCC 25922	poor / fair	-	
Proteus mirabilis ATCC 29906	good / very good	±	
Shigella sonnei ATCC 11060	none		
Staphylococcus aureus ATCC 25923	none		
Bacillus cereus ATCC 11778	none		

Limitations

1. It is important to streak for well isolated colonies.
2. With confluent growth typical colonial characteristics of Salmonella spp. will not develop
3. Some Salmonella strains are markedly inhibited, for example *Salmonella gallinarum*, *S. sendai*, *S. berta*, *S. abortus-equi*. (Hajna 1951, Pub. Hlth. Rep. 9, 48-51)

Therefore, when in doubt, almost any growth on the medium should be subject to further tests e.g. subculture onto a less selective medium in a manner to obtain well-isolated colonies. Use pure cultures for biochemical and serological confirmation.



Salmonella typhimurium

Literature

McCOY, J.H.: The isolation of Salmonellae. – **J. Appl. Bact.**, **25**; 213-224 (1962).
WILSON, W.J., a BLAIR, E.M. McV.: Use of glucose bismuth sulfite iron medium for the isolation of Bacillus typhosus and Bacillus proteus. – **J. Hyg.**, **26**; 374-391 (1927).
WILSON, W.J., a BLAIR, E.M. McV.: Further experience of the bismuth sulfite media in the isolation of Bacillus typhosus and Bacillus paratyphosus B from faeces, sewage and water. – **J. Hyg.** **31**; 138-161 (1931).

