

Bacteriological agar

Code 84609.0500

Also known as

Agar, agar-agar

Intended use

Solidifying agent used in the preparation of microbiological culture media

Principle of the method and general information

Agar or agar-agar is a gelatinous substance derived by boiling a polysaccharide of red-purple algae (usually *Gelidium* spp.), where it accumulates in the cell walls of agarophyte and serves as the primary structural support for the algae's cell walls. Agar is a mixture of two components: the linear polysaccharide agarose, and a heterogeneous mixture of smaller molecules called agaropectin.

Originally used as a solidifying agent in foods by the population of the island of Java, it was introduced into bacterial isolation techniques at the end of 1800 by Dr Walther Hesse, a medical officer from Saxony, who was studying microbial contamination of air. It was his wife, Fanny Hesse, who suggested it since she had been solidifying fruit preparations for years with the same method used by Javanese housewives. Robert Koch perfected the use of agar in culture substrates and gave great impetus to the technique of isolating microorganisms in a pure culture.

Bacteriological agar is the solidifying agent chosen for microbiological culture media. Thanks to its high degree of purity it gives clear aqueous solutions at the concentrations used in culture media.

Bacteriological agar is typically used in a final concentration of 1-1.5 % for solidifying culture media. Lower concentrations are used in media for motility studies (0.5%) and for growth of anaerobes (0.1%).

Instruction for use

For laboratory use only.

The experimental procedure depends on the purpose for which Bacteriological agar is used.

Quality Control

Physical characteristics:

Appearance of powder	White-yellowish, fine, homogeneous hygroscopic powder
Appearance of 1.3% solution	Yellowish, limpid
Water absorption (5 g/100ml)	> 25 ml
Sieve analysis (ASTM) - over sieve	
60 mesh	< 5%
325-400 mesh	< 10%
% H ₂ O	< 10%
Ash	< 5%
BEFORE AUTOCLAVING:	
Clarity 1,5% solution	< 15 NTU
Colorimetry 450 nm 1,5% solution	< 0,250 Nmu
pH 1,5% solution	6.0 - 7.5
Gel strenght (Nikkan)	> 750 g/cm ²
Gelling temperature (1.5% solution)	30 - 40 °C
Melting temperature (1.5% solution)	80 - 90 °C

Microbiological characteristics:

Test Strains	Incubation T° / t / At.	Inoculation method	Growth characteristics
Peptone agar			
<i>S. epidermidis</i> ATCC 12228	35-37 °C / 24 h / AE	EC	Good growth
<i>S. faecium</i> ATCC 19434	35-37 °C / 24 h / AE	EC	Good growth
<i>S. pneumoniae</i> ATCC 6303	35-37 °C / 24 h / AE	EC	Good growth
<i>C. albicans</i> ATCC 18804	35-37 °C / 24 h / AE	EC	Good growth

Notes

Incubation atmosphere AE: aerobic incubation

Inoculation method DE: dilution to extinction method; EC: semi-quantitative, ecometric technique

ATCC is a registered trade mark of American Type Culture Collection

Storage conditions

Keep tightly closed, away from bright light, in a cool dry place (+10°C to 30 °C and <60% RH).

Ordering information

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Bottle of 500 g