Pseudomonas Agar P, Base

Elective culture media proposed by KING, WARD and RANEY (1954) for the isolation and differentiation of Pseudomonas based on the formation of pyocyanin and/or pyorubin or fluorescein.

This media comply with the recommendations of the United States Pharmacopeia XXVI (2003) and correspond to the culture media specified in the DIN Norm 38411 (examination of water).

Mode of Action

Pseudomonas Agar P favours the formation of pyocyanin and/or pyorubin and reduces that of fluorescein, whereas Pseudomonas Agar F stimulates the production of fluorescein and reduces that of pyocyanin and/or pyorubin. Simultaneous use of both culture media allows rapid, preliminary identification of most Pseudomonas species, as some strains can only synthesize pyocyanin, some form only fluorescein and others produce both pigments.

Typical Composition (g/litre)

Peptone 20.0; magnesium chloride 1.4; potassium sulfate 10.0; agar-agar 12.6.

Also to be added:

glycerol 10.0 ml.

Preparation

Suspend 10.0 ml glycerol/litre together with 44 g Pseudomonas Agar P Base/litre, dispense into test tubes if desired, autoclave (15 min at 121 °C). Make slant tubes or pour plates.

pH: 7.2 ± 0.2 at 25 °C.

The plates are yellowish-brown (1.10989.).

Experimental Procedure and Evaluation

Inoculate the surface of the culture medium with cultures suspected to contain Pseudomonas so that individual colonies develop.

Incubation: up to 7 days at 35 °C.

Check for bacterial growth after 24, 48 and 72 hours and then after 6 days.

Pseudomonas aeruginosa can grow on Pseudomonas Agar P to form colonies surrounded by a blue to green zone due to pyocyanin formation or with a red to dark brown zone due to pyorubin production. The coloured pigments can be extracted with chloroform.

According to BLAZEVIC et al. (1973), atypical pyocyanin-negative, fluorescein-positive Ps. aeruginosa strains can be differentiated from Ps. fluorescens and Ps. putida. BRODSKY and NIXON (1973) reported that the fluorescence of Ps. aeruginosa colonies in ultra-violet light following growth on MacCONKEY agar can be exploited to provide a rapid orientation test, Ps. fluoresce and Ps. putida do not fluorescens and show only scanty growth.

Literature

BLAZEVIC, D.J., KOEPCKE, M.H., a. MATSEN, J.M.: Incidence and identification of Pseudomonas fluorescens and Pseudomonas putida in the clinical laboratory. **– Appl. Microbiol., 25**; 107-110 (1973).

BRODSKY, M.H., a. NIXON, M.C.: Rapid method for detection of Pseudomonas aeruginosa on McCONKEY-Agar under ultraviolet light. **-Appl. Microbiol., 26**; 219-220 (1973).

DIN Deutsches Institut für Normung e.V.: Deutsche Einheitsverfahren zur Wasser-, Abwasser und Schlammuntersuchung. Mikrobiologisches Verfahren (Gruppe K). Nachweis von Pseudomonas aeruginosa (K 8). **– DIN 38411**.

GEORGIA, F.R., a. POE, C.F.: Study of bacterial fluorescence in various media. I. Inorganic substances necessary for bacterial fluorescence. **-J. Bact., 22**; 349 (1931).

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KING, E.O., WARD, M.K., a. RANEY, D.E.: Two simple media for the demonstration of pyocyanin and fluorescin. **– J. Lab. Clin. Med., 44**; 401-307 (1954). United States Pharmacopeia XXVI, Chapter "Microbial Limit Tests", 1995.

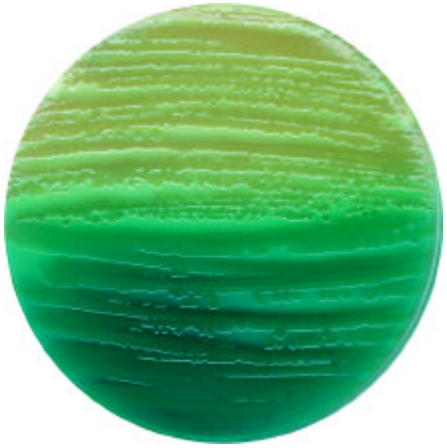
Ordering Information

Product	Merck Cat. No.	Pack size
Pseudomonas Agar P, Base	1.10988.0500	500 g
Glycerol	1.04091.0500	500 ml
UV Lamp (366 nm)	1.13203.0001	1 ea

Pseudomonas Agar P, Base

Quality control

Test strains	Growth	Blue-green pigment in day-light
Pseudomonas aeruginosa ATCC 27853	good / very good	(+)
Pseudomonas aeruginosa ATCC 9027	good / very good	+
Pseudomonas aeruginosa ATCC 25668	good / very good	+
Pseudomonas fluorescens ATCC 13535	good / very good	- (yellowish)
Aeromonas hydrophila ATCC 7966	good / very good	-
Escherichia coli ATCC 25922	good / very good	-
Enterobacter cloacae ATCC 13047	good / very good	-



Pseudomonas aeruginosa ATCC 27853 und Pseudomonas aeruginosa ATCC 8027

Pseudomonas fluorescens ATCC 13535 und Pseudomonas aeruginosa ATCC 25668