APT Agar

All purpose medium with Tween® proposed by EVANS and NIVEN (1951) and DEIBEL, EVANS and NIVEN (1957) for counting and cultivating heterofermentative lactic acid bacteria including Lactobacillus, Leuconostoc species, Lactococcus lactis and other microorganisms which require a high thiamine concentration in meat products, tinned foods, fruit juices and other foodstuffs.

The medium complies with the recommendations of the American Public Health Association (1992).

Mode of Action

This medium contains a rich nutrient base with additives of Tween®, thiamine and several essential elements, which provide optimal growth conditions for the abaove mentioned bacteria. The culture medium is not selective, accompanying bacteria therefore also grow very well.

Typical Composition (g/litre)

Peptone from casein 12.5; yeast extract 7.5; D(+)glucose 10.0; sodium chloride 5.0; tri-sodium citrate 5.0; di-potassium hydrogen phosphate 5.0; Tween® 80 0.2; magnesium sulfate 0.8; manganese chloride 0.14; iron(II) sulfate 0.04; thiaminium dichloride 0.001; agar-agar 13.5.

Preparation

Suspend 59.5 g/litre, fill into suitable containers, autoclave (15min at 121 °C). **Do not overheat**

pH: 6.7 ± 0.2 at 25 °C.

The prepared medium is clear and brown.

Experimental Procedure and Evaluation

When performing bacterial counts, dilute the sample material and inoculate the APT Agar by the pour-plate method.

Incubation: 2 days at 35 °C aerobically.

In order to identify lactic acid bacteria which produce a green colouration, inoculate with the suspect colonies. After incubating for 24 hours at 32 °C, transfer a sample from the culture that has developed onto the cut surface of a smoked sausage. Place the sausage in a Petridish containing a damp piece of filter paper ("moist chamber"). Incubate for 18-24 hours at 32 °C and see whether there is a green colouration. A sample of the sausage which has not been inoculated serves as a control. In order to exclude other pigment-forming bacteria (e.g. Pseudomonas), a confirmatory bacteriological test (e.g. Gram-positive rods, negative catalase test, negative nitratase test, positive peroxidase test, acetoin production from glucose, ammonia production from arginine etc.) should also be performed.

Literature

American Public Health Association: Compendium of Methods for the Microbiological Examination of Foods. - 3rd ed., 1992.

DEIBEL, R.H., EVANS, J.B., a. NIVEN, C.F.: Microbiological assay for the thiamin using Lactobacillus viridescens. - **J. Bact., 74**; 818-821 (1957).

EVANS J.B., a. NIVEN, C.F.: Nutrition of the heterofermentative Lactobacilli that cause greening of cured meat products. - **J. Bact., 62**; 599-603 (1951).

Ordering Information

Product	Merck Cat. No.	Pack size
APT Agar	1.10453.0500	500 g

Quality control

Test strains	Growth
Lactobacillus acidophilus ATCC 4356	good / very good
Lactobacillus casei ATCC 393	good / very good
Lactobacillus fermentum ATCC 9338	good / very good
Lactobacillus plantarum ATCC 14917	good / very good
Lactobacillus viridescens ATCC 12706	good / very good
Leuconostoc mesenteroides ATCC 9135	good / very good
Lactococcus lactis spp. lactis ATCC 19435	good / very good