BAT Agar

M1650

Alicyclobacillus Agar

BAT Agar is used for the isolation of *Alicyclobacillus* species in fruit juices

Composition**

Ingredients	Gms / Litre
Yeast extract	2.000
Dextrose (Glucose)	5.000
Calcium chloride	0.25066
Magnesium sulphate	0.500
Ammonium sulphate	0.200
Potassium dihydrogen phosphate	3.000
Zinc sulphate	0.00018
Copper sulphate	0.00016
Manganese sulphate	0.00015
Cobalt chloride	0.00018
Boric acid	0.00010
Sodium molybdate	0.00030
Agar	18.000
Final pH (at 25°C)	4.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 28.95 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Note: Adjust the pH of the medium to 4.0 ± 0.2 (after sterilization) using 1N H2SO4 or 1N NaOH .

Principle And Interpretation

Alicyclobacillus species are gram positive aerobic thermophillic, and spore forming acidophilic bacteria. *Alicyclobacillus* are sometimes called Acidophilic Thermophillic Bacteria (ATB). These spore forming organisms are able to survive the relatively mild pasteurization temperatures used for fruit juices and drinks and some are able to grow out and cause spoilage of the beverage. Even very low numbers of *Alicyclobacillus* are able to cause spoilage and produce objectionable flavours and odours specially affecting the quality of fruit juice (1,2) and in the beverages, damaging the brand. These bacteria are able to grow at pH values as low as 2.5 and also at elevated temperatures as high as 60°C.

BAT (*Bacillus AcidoTerrestris*) Agar has a pH of 4.0 ± 0.2 which supports growth of *Alicyclobacillus* species and inhibits most of the microbial flora (3). Rest of the microbial flora is inhibited at 60°C, which is the optimum growth temperature for *Alicyclobacillus* species.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.8% Agar gel

Colour and Clarity of prepared medium
Light amber coloured clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 2.89% w/v aqueous solution at 25°C. pH : 4.0±0.2

pH
3.80-4.20

Cultural Response

Cultural characteristics observed after an incubation at 60°C for 48-72 hours.

Organism	Growth
Alicyclobacillus acidoterrestris ATCC 49025	good to luxuriant
Alicyclobacillus acidocaldariusATCC 27009	good to luxuriant
Escherichia coli ATCC 25922	inhibited
Staphylococcus aureus ATCC 25923	inhibited
Candida albicans ATCC 10231	inhibited
Saccharomyces cerevisiae ATCC 19615	inhibited

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

Reference

1. Ceny G., Hennlish W. and K Rocallia-Furchtsaftwerb ducrh Baciilen. Isobioerung and Charakteriseeuing des Verdebserregens-Z hebers Utres Forsch 179: 224-227, 1984.
2. Baumgart and Merve S., The Impact of Alicyclobacillus acidoterstris on the Quality of Juices and Soft Drinks Fruit processing 7: 251-254 (2000).
3. BAUMGART, J. (2003) Media for detection and enumeration of *Alicyclobacillus acidoterrestris* and *Alicyclobacillus acidocaldarius* in foods. In handbook of culture Media for Food Microbiology, J.E.L. Corry et al,(Eds.) Elsevier Sci B.V. Amsterdam.

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