Instructions for Use

REF - KM0037 **Baird Parker Agar**

Dehydrated Culture Media

1. Intended Use

KM0037 Baird Parker Agar is a moderately selective and differential medium for the isolation and presumptive identification of coagulase-positive staphylococci in food samples [1 2].

2. Composition*

Ingredient	g/L
Enzymatic digest of casein	10.0
Yeast extract	1.0
Meat extract	5.0
Sodium pyruvate	10.0
Glycine	12.0
Lithium chloride	5.0
Agar	20.0

*Adjusted/supplemented as needed to meet performance requirements

3. Summary and Explanation

First developed by Baird-Parker in 1962 [1], Baird Parker Agar is used extensively for detecting *Staphylococcus aureus* in foods, dairy products, and other materials [3].

KM0037 is recommended by the Bacteriological Analytical Manual [4] and tested in accordance with ISO 11133:2014 [5] and the principals of ISO 6888-1:2021 [6].

4. Principle

Enzymatic digest of casein, meat extract and yeast extract supply the required carbon, nitrogen, and vitamins. Glycine and sodium pyruvate are included as growth enhancers while the pyruvate also acts as a neutraliser of toxic peroxides. The medium is made selective by the inclusion of lithium chloride and the addition of potassium tellurite [1]. Coagulase positive staphylococci are differentiated by the addition of egg yolk tellurite (BM0530) due to their ability to break down the egg yolk. Clear zones around colonies form due to the proteolytic action of lecithinase. A secondary opaque zone, surrounding presumptive positive colonies, may also form due to lipase activity. Potassium tellurite is reduced by staphylococci giving rise to blackening of colonies.

5. Preparation Instructions

Suspend 63.0g of dehydrated culture medium in 1 litre of deionised/purified water and heat with frequent agitation and boil for one minute to completely dissolve medium.
Autoclave to sterilise at 121°C for 15 minutes before cooling in a water bath to 45-50°C, aseptically add the appropriate volume of egg emulsion/potassium tellurite supplement such as 50-100ml of E&O BM0530 Egg Yolk Emulsion with Tellurite.
Gently homogenize the final medium before aseptically dispensing the specified volume into appropriate sterile containers and allowing to cool.

6. Physical Characteristics

	Dehydrated Medium	Prepared Medium
Appearance and Colour	Straw fine powder	Pale yellow firm gel
pH	N/A	7.2 ± 0.2

7. Materials Provided

KM0037 can be provided in the formats detailed below. Each tub is labelled with product name, product code, lot number, expiry date, instructions, and appropriate warnings.

Product Code	Product Format
KM0037-500G-500	1 x 500g Dehydrated Culture Media Tub
KM0037-5KG-5000	1 x 5kg Dehydrated Culture Media Tub
KM0037-10KG-10000	1 x 10kg Dehydrated Culture Media Tub

8. Materials Needed but not Provided

Standard microbiological laboratory materials *e.g.,* autoclave, sterile loops or swabs, collection containers, incubators, and quality control organisms.

9. Specimens

KM0037 Baird Parker Agar is suitable for the testing of the following specimens:

- Food and Environmental: products for human consumption, animal feed and environmental samples.

Sampling and transport equipment must be used in accordance with the end user's suppliers' recommendations. Refer to appropriate standard method or local guidance on sample collection and subsequent processing.

10. Test Procedures and Interpretation of results

Allow the plates to come to room temperature.

Food/Environment Specimens [4 6]

According to BAM and ISO 6888-1:2021 [4 6], check to see if the specimen requires serial dilutions prior to inoculation to the prepared medium.

- Process the food/environmental specimen as required by local guidelines.
- Inoculate specimen directly onto the medium and streak across the agar surface using a sterile loop or automated plate streaker.
- Incubate the plates at 34-38°C aerobically for 24-48 hours. If required, morphology checks should be performed at the 24-hour incubation time.

After incubation, examine agar for colonies (typical colony appearance outlined in Quality Control table below). Perform further biochemical, serological, or mass spectroscopy testing to confirm identity of presumptive positive isolates. Refer to relevant local guidelines.

11. Quality Control

Organism	Incubation	Result (Specificity)
S. aureus (NCTC 12981)	37 ± 1°C aerobically for 24-48 hours	Black colonies. Narrow opaque halo with a zone of clearing
S. aureus (NCTC 10788)	37 ± 1°C aerobically for 24-48 hours	Black colonies. Narrow opaque halo with a zone of clearing
S. saprophyticus (NCTC 7292)	37 ± 1°C aerobically for 24-48 hours	Black colonies. NO halo or zone of clearing
S. epidermidis (NCTC 13360)	37 ± 1°C aerobically for 24-48 hours	Partially inhibited. Black colonies. NO halo or zone of clearing
E. coli (NCTC 12241)	37 ± 1°C aerobically for 24-48 hours	Inhibited
E. coli (NCTC 12923)	37 ± 1°C aerobically for 24-48 hours	Inhibited

It is the responsibility of the user to perform Quality Control testing taking into consideration the intended use of the medium, and in agreement with any local relevant guidelines (e.g., frequency, strains used, atmosphere, incubation temperature).

12. Performance

To fully verify KM0037 Baird Parker Agar performance, dehydrated culture media samples were used to prepare Baird Parker Agar with 5% Egg Yolk Tellurite and tested to assess colony morphology and recovery level (where an acceptable range is ≥50% and ≤120%) compared to a non-selective reference medium. Prepared samples were inoculated with 30-150cfu for the target organisms and 10^4-10^5 cfu for the non-target organisms then incubated at 37 ± 1°C aerobically for 24-48 hours. All samples of prepared media produced showed expected recovery and morphology of the required test organisms: *Staphylococcus aureus* (NCTC 12981), *Staphylococcus aureus* (NCTC 10788) and *Staphylococcus saprophyticus* (NCTC 7292), partial recovery of *Staphylococcus epidermidis* (NCTC 13360), and no recovery of the non-target test organisms: *Escherichia coli* (NCTC 12241) and *Escherichia coli* (NCTC 12923). Therefore, it can be concluded that KM0037 Baird Parker Agar meets performance criteria when used according to the instructions outlined above. Trend analysis data available upon request.

13. Limitations of the Media

- Biochemical and, if indicated, serological testing using pure cultures may be necessary for complete identification; these tests should be performed from a non-selective agar.
- Due to natural variation, some strains may grow poorly on this medium.

14. Precautions and Warnings

This product is considered hazardous under CLP regulations. Refer to KM0037 Material Safety Data Sheet. Wear such PPE as recommended by laboratory COSHH assessment. During and after use, always handle all materials in a manner conforming to Good Laboratory Practices and consider that material under test should be regarded as a potential biohazard if mishandled.

15. Storage conditions and Shelf life

Store product in the original container with the lid tightly closed at between 10 and 30°C in low humidity conditions away from direct sunlight. Kept under these conditions, the product may be used up to the date of expiry shown on the product label.

Do not use if the product is not free-flowing or displays any sign of colour change, formation of large lumps or hardening of the powder. Additionally, do not use medium if it has been stored inappropriately, the packaging has been damaged or has passed the expiry date.

Dehydrated culture media does not need to be used all at once; replace the cap and ensure that the container is tightly closed and

stored according to labelled instructions.

Dispose of in accordance with local and national authority requirements.

16. References

1. Baird-Parker A. C. 1962; An improved diagnostic and selective medium for isolating coagulase positive staphylococci. J. appl. Bact. 25: 12-19.
2. Tardio, J.L. and Baer, E.F. (1971) Comparative Efficiency of Two Methods and Two Plating Media for Isolation of *Staphylococcus aureus* from Foods. Journal of Association of Official Analytical Chemists, 54(3): 728–731.
3. Salfinger, Y. and Tortorello, M. (eds.) (2015) Compendium of methods for the microbiological examination of foods. 5th ed. Washington DC: American Public Health Association Press.
4. Tallent, S., Hait, J., Bennett, R.W. and Lancette, G.A. (1998) BAM Chapter 12: *Staphylococcus aureus*. US Food and Drug Administration. Bacteriological Analytical Manual Online, 8th Edition, Rev. 2016. Silver Spring, MD.
5. International Organization for Standardization (2014) 11133:2014 Microbiology of food, animal feed and water - Preparation, production, storage, and performance testing of culture media. Geneva: ISO.
6. International Organization for Standardization (2021) 6888-1:2021 Microbiology of the food chain - Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) – Part 1: Method using Baird-Parker agar medium. Geneva: ISO.

Version History*

001 09/06/23 - New Document Created
002 04/10/23 - Updates made to section 14

*Note: minor typographical, grammatical, and formatting changes are not included in the revision history.

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TABLE OF APPLICABLE SYMBOLS

REF o REF Catalogue number	LOT Batch code		Manufacturer	Use by
Temperature limitation	Σ Contents sufficient for <n> tests	Consult Instructions for Use	Keep away from direct light	Store in a dry place