



Shapton Medium

M645

Shapton Medium is used for enumeration of spores of *Bacillus stearothermophilus*, which cause flat sour spoilage in canned foods with pH more than 4.5.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	2.500
Peptic digest of animal tissue	5.000
Beef extract	3.000
Yeast extract	1.000
Dextrose	1.000
Bromo cresol purple	0.025
Agar	15.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 27.53 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. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Bacillus stearothermophilus is a thermophile that is widely distributed in soil, hot springs, ocean sediment, and is a cause of spoilage in food products. It is commonly used as a challenge organism for steam sterilization validation studies. Flat sour spoilage occurs chiefly in low acid foods, such as peas, corn and lima beans but can also occur in medium acid foods such as spinach, green beans etc. Shapton and Hindes (1) formulated the medium for the enumeration of spores of *Bacillus stearothermophilus*, which cause flat sour spoilage in canned foods with pH more than 4.5.

Casein enzymic hydrolysate, peptic digest of animal tissue, beef extract and yeast extract in the medium provide carbon, nitrogen, vitamins and minerals required for bacterial metabolism. Dextrose is the fermentable carbohydrate. Bromocresol purple is the pH indicator, indicating dextrose fermentation visualized as a colour change from purple to yellow.

The sample under test is suspended in Ringers salt solution and then added to sterile molten Shapton Medium and is held at 100°C for 20 minutes. Then the temperature is slightly raised to 108.4°C and maintained for 10 minutes after which this is cooled to 50°C and plates are poured. The plates are incubated at 55°C for 48 hours.

Quality Control

Appearance

Light yellow to grey homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Light purple coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 2.75% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH

7.20-7.60

Cultural Response

M645: Cultural characteristics observed after an incubation at 55°C for 18-48 hours .

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
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Bacillus stearothermophilus 50-100 luxuriant $\geq 50\%$ yellow
ATCC 7953

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. Shapton D. A. and Hinds W. R., 1963, Chemistry and Industry, p. 230.

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Disclaimer :

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