Spore Staining Solution (Moeller's Method)

S1510446

Storage Room temperature.Store in the dark.
Shipping Regular transportation.

Introduction

Whether a bacterium produces spores, along with the shape and location of those spores, are important identifying characteristics of the bacterium. The spore coat of bacteria is structurally more complex, compact, and less permeable than the cell wall of vegetative cells, making spore staining and decolorization more difficult to achieve than that of vegetative cells. Spores exhibit strong resistance to heat and chemical agents. When basic dyes are used in combination with heating or extended staining time, both the bacterial cells and spores can be stained. Subsequent rinsing with distilled water removes the stain from the vegetative cells, whereas the stain in the spores remains intact, allowing for clear morphological differentiation between spores and vegetative cells under a microscope.

Aladdin Spore Staining Solution (Moeller's Method) consists primarily of carbol fuchsin staining solution, Moeller's decolorizing solution, and Moeller's methylene blue staining solution. With this reagent, spores are stained red and vegetative cells are stained blue. The method features simple operation and reliable result interpretation. However, it should be noted that spores should be observed during their mature stage, but not overly late in the growth cycle—otherwise, only spores can be visualized, as the vegetative cells would have already disintegrated. This reagent is intended for research use only and is not suitable for clinical diagnosis or any other purposes.

Product Components and Storage Conditions:

S1510446	Component	3×20mL	Storage
S1510446A	Carbol Fuchsin Staining Solution	20mL	RT. Store in the dark.
S1510446B	Moeller's Decolorizing Solution	50mL	RT
S1510446C	Moeller's Methylene Blue Staining Solution	20mL	RT

Materials Required (Self-prepared):

1. Alcohol lamp, glass slides, inoculation loops, microscope.
2. Distilled water.

Operating Procedures (For Reference Only):

1. Place a drop of distilled water on a clean, grease-free glass slide.
2. Use an inoculation loop to pick a small amount of Bacillus megaterium from the slant

culture, mix it thoroughly with the distilled water to prepare a smear, and allow it to air-dry.

3. Add carbol fuchsin staining solution to cover the smear evenly; heat gently over low flame until the staining solution produces steam, and maintain this state for approximately 5 minutes.
4. After cooling, rinse the slide with water. Decolorize with Moeller's decolorizing solution for 2 minutes, then rinse the slide gently with water.
5. Counterstain with Moeller's methylene blue staining solution for 0.5 minutes, followed by rinsing with water.
6. Microscopic examination: Air-dry the slide and observe under the microscope. Identify the shape, size and position of spores within the bacterial cells, as well as whether the spores cause swelling of the cells.

Staining Results:

Spores	Red
Vegetative Cells	Blue

Notes: The following points should be observed carefully during microscopic examination:

Morphology	Round or oval
Position	Central, terminal, subterminal
Size	Whether the vegetative cells are swollen

Precautions:

1. The glass slides should be clean and free of grease.
2. Spores are formed during the growth and development stage. Observe the spores at their mature stage, but not too late—otherwise, only spores can be seen as the vegetative cells would have disintegrated.
3. Handle with care during the staining process to prevent the bacterial smear from detaching.
4. Avoid high-temperature flame fixation during the smear-fixing step.
5. For your safety and health, wear a lab coat and disposable gloves during the operation.