

K125 COAGULASE

DISCUSSION:

The ability to coagulate human or rabbit blood plasma is considered to be the single most reliable indication of pathogenicity among *Staphylococcus* strains. The presence of the enzyme coagulase binds plasma fibrinogen, causing the plasma to clot. Two methods are available for detecting coagulation: the slide test, which depends upon cell-bound coagulase (sometimes referred to as "clumping factor") and the tube test, which is brought about by free coagulase liberated from the bacterial cells into the surrounding medium. The two coagulases are antigenically distinct, but approximately 99% of *S. aureus* strains produce both forms. When properly controlled, the speed and accuracy of the slide test make it the method of choice: however, a negative reaction should be confirmed through the use of the tube method since occasional strains fail to produce the bound coagulase. (1)

INGREDIENTS:

Coagulase Discs are made from rabbit plasma.

INSTRUCTIONS:

1. Place 1 drop of distilled water on a glass microscope slide and prepare a heavy suspension of the organism being tested.
2. Add 1 KEY Coagulase Disc and rub the disc about in the suspension, using the tip of a wire or plastic loop. At once add a second drop of distilled water and mix again.

INTERPRETATION:

Coagulase negative organisms will remain evenly suspended. Macroscopic clumping will occur within 30 seconds in a positive test. Do not observe beyond 1 minute as drying may give a misleading appearance of granularity.

MATERIAL PROVIDED:

Coagulase discs-30 per vial.

MATERIAL REQUIRED BUT NOT PROVIDED:

- Glass microscope slide
- Loop for harvesting colonies
- Distilled water, neutral pH

LIMITATIONS:

Some strains, especially *Micrococcus* cultures, fail to provide a smooth suspension. In such case the tube test must be employed since clumping due to coagulase activity cannot be observed. Occasional strains of pathogenic *S. aureus* may be coagulase negative. KEY Dextrose Fermentation tablets (K150) with an oil overlay are especially useful in this case to quickly differentiate this organism from *Micrococcus*.

STORAGE:

Store tightly closed @ <0°C.

QUALITY CONTROL:

Key Coagulase Discs should be tested prior to use with organisms of known reactivity. Key suggests *Staphylococcus aureus* ATCC 25923 for positive control and *Staphylococcus epidermidis* ATCC 12228 for negative control. Discard used tests in a manner conforming with accepted laboratory procedures for biohazardous materials.

REFERENCES AND FOOTNOTES:

- (1) Bailey and Scott's Diagnostic Microbiology, 7th Edition, Chapter 24, "Micrococcaceae: Staphylococci and Micrococci"



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