

# K250 GELATIN STRIPS

## DISCUSSION:

The production of enzymes that enable some organisms to hydrolyze certain substrates can be a valuable tool in identification. The enzyme gelatinase, which liquifies gelatin, is one of these. This enzyme is produced by only a few members of Enterobacteriaceae, primarily *Serratia sp.*, *Proteus mirabilis*, *Proteus vulgaris*, and some *Enterobacter species*. *Salmonella* and *Shigella* are negative with the exception of *S. arizona*. The gelatin test may also be used in the I.D. Of organisms other than Enterobacteriaceae, specifically in differentiating the *Pseudomonas* species or anaerobes. Key Gelatin Strips indicate production of gelatinase by the visibility of the blue color of the base material when the gelatin has been liquified from a strip incubated in a heavy suspension of the organism being tested.

## MATERIALS REQUIRED:

Key Gelatin Strips are sold in bottles of 50. Usage requires preliminary growth on media appropriate for the specimen. Consult a reference manual such as the Manual of Clinical Microbiology for appropriate media. The following items are required but not provided: small test tubes (e.g. 10 x 75), loop for harvesting colonies, and distilled water.

## STORAGE:

Store tightly covered in a cool, dry place.

## INSTRUCTIONS:

- 1) In a small test tube, make a heavy suspension of the organism to be tested in 0.5 to 1 ml. of distilled water.
- 2) Drop 1 gelatin strip in the test tube. Alternately, if you already have a pure culture in broth, you may drop the gelatin strip directly into that tube (e.g. TSB).
- 3) Incubate at 32-37°C for up to 48 hours. Some liquification may be seen as quickly as 30-60 minutes.

## INTERPRETATION:

A positive result is the visibility of the blue base material anytime during the 48 hours. In some strongly positive tests a blue ring may form on the surface of the liquid.

## QUALITY CONTROL:

Positive and negative organisms should be tested along with each test group. Key suggests *Serratia marcescens* ATCC 8100 as positive control and *Escherichia coli* ATCC 25922 as negative. Discard used tests in a manner conforming with accepted laboratory procedures for biohazardous materials.

## FREQUENTLY ENCOUNTERED GELATINASE POSITIVE BACILLI:

### Fermenters:

<i>Proteus vulgaris</i>	91%
<i>Proteus mirabilis</i>	90%
<i>Proteus myxofaciens</i>	100%
<i>Serratia marcescens</i>	90%
<i>Serratia liquifaciens</i>	90%
<i>Serratia odorifera</i>	95%

### Nonfermenters:

<i>Pseudomonas stutzeri</i>	100%
<i>Pseudomonas fluorescens</i>	90%
<i>Pseudomonas cepacia</i>	90%

## REFERENCES:

- 1) Bailey and Scott's Diagnostic Microbiology, 7th Edition, 1986, pg. 418
- 2) Manual of Clinical Microbiology, 5th Edition, Chapters 40 & 41.
- 3) Nonfermentative Gram Negative Bacilli, a syllabus for detection and identification, by M.J. Pickett.



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