VOGES-PROSKAUER TESTS

PRINCIPLE /DISCUSSION:

Voges-Proskauer tests demonstrate an organism's ability to convert pyruvate to acetoin. This property is a valuable tool in distinguishing *Klebsiella*, *Enterobacter*, *Ewingella* and *Serratia* from other members of Enterobacteraceae, as well as distinguishing between *Proteus vulgaris* (V-P negative) and *P. mirabilis* (V-P positive).

Key Scientific has found that modifications in the original procedure can produce more clear cut reactions as well as shorten the incubation period. Key's rapid V-P test can be used in place of any standard V-P test. Since the pyruvate to acetoin conversion occurs more efficiently at a slightly acid pH, the tablets contain dextrose to insure adequate acid formation.

ACTIVE INGREDIENTS:

Voges-Proskauer Tablets contain 10 mg. of sodium pyruvate per tablet with dextrose and other inert ingredients. WEE-TABS contain 1 mg. sodium pyruvate.

Voges-Proskauer Tablets do not contain any material known at this time to be hazardous.

MATERIALS REQUIRED:

Voges-Proskauer tests require preliminary growth on appropriate media. Consult a manual such as the Manual for Clinical Microbiology for this information. Each item is sold separately.

K660 Voges Proskauer Base -50/bottle
K670 Voges Proskauer Buffer -50/bottle
K1660 WEE-TAB-28 ready-to-use tubes.
K980670 40% KOH (V-P "B" reagent) -3 mls.
K980660 alpha-naphthol (V-P "A" reagent) -3 mls

The following items are also required but not provided:

Test tubes for large tablets
Loop for colony transfer
Distilled water

PROCEDURE:

(1) Place 1 of each V-P Tablet and 1 ml. of distilled water into a test tube.

(2) Inoculate heavily with either 2-3 drops of a heavy suspension of the organism to be tested or with a heavy loopful of organism directly from the plate. Best results require a final suspension of at least a #3 McFarland.

(3) Incubate at 35-37C for 6-8 hours, but no more than 8 hours. Inoculating the V-P tube and refrigerating overnight for incubation the next day will not adversely affect the test.

(4) After incubation, 2 drops of alpha-naphthol reagent and mix by gently shaking.

(5) Next add add 3 drops of 40% KOH. The reagent will form a thin layer on the surface of the liquid. Allow the tube to stand, up to 30 minutes, observing periodically for the appearance of a cherry red color.

INTERPRETATION:

In a positive V-P test, the acetoin will react with alpha-naphthol in the alkaline environment provided by the KOH to produce a cherry red color. The color develops first at the surface and then spreads gradually into the lower part of the tube. In a strong reaction the color appears almost immediately but weaker ones may take 20-30 minutes. No color change, or the appearance of a copper color is a negative result.

QUALITY CONTROL:

KEY Voges-Proskauer Tablets should be tested prior to use with organisms which produce known reactions. Key Scientific suggests *Enterobacter aerogenes* ATCC 13048 for positives and *E. coli* ATCC 25922 for negative. Finished tests should be discarded in a manner appropriate for biohazardous materials

STORAGE:

Store unused tablets, with desiccant, tightly sealed at room temperature.

USUAL REACTIONS:

Serratia marcescens	+
Serratia liquifaciens	+
Klebsiella pneumoniae	+
Klebsiella oxytoca	+
Enterobacter aerogenes	+
Enterobacter cloacae	+
Proteus mirabilis	+
Proteus vulgaris	-
E. coli	-
Salmonella	-
Shigella	-
Citrobacter freundii	-
Morganella morganii	-
Yersinia enterocolitica	-

REFERENCES:
1) Manual of Clinical Microbiology, Fifth Edition, Chapter 120, "Quality Control" and Chapter 122, "Reagents and Stains"
2) Bailey and Scott's Diagnostic Microbiology, Seventh Edition, Chapter 27, "Enterobacteraceae"

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